

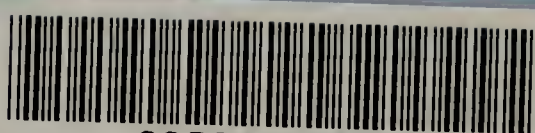


# REPORT

OF THE

**DIRECTOR GENERAL  
OF PUBLIC HEALTH**

**FOR 1970**



22501407518

1971  
(SECOND SESSION)

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PARLIAMENT OF NEW SOUTH WALES

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REPORT  
OF THE  
Director General of Public Health  
for 1970

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*Ordered to be printed, 21 October, 1971*

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# DEPARTMENT OF PUBLIC HEALTH, NEW SOUTH WALES

Office of the Director General of Public Health  
9-13 Young Street, Sydney

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(As at 31st December, 1970)

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Mrs J. D. Martin; Aldermen B. L. Lewis, F. J. Purdue and D. G. McDougall.

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Administrative Officer, Public Health Services and Secretary, Board of Health  
PETER KRIX, Esq.

## DIVISIONS AND BRANCHES

The following Divisions and Branches are controlled by the Director General of Public Health: Maternal and Child Health; Maternal and Perinatal Studies; Tuberculosis; Epidemiology; Dental Services; Occupational Health; Forensic Medicine; Analytical Laboratories (Government Analyst); Medical Officers of Health for the Metropolitan, Western Metropolitan, Newcastle, South Coast, Western, North Western, North Coast, Riverina and Broken Hill Districts; Institute of Clinical Pathology and Medical Research; Health Education; Pure Food; Health Inspection; Private Hospitals; Poisons Branch.

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# Report of the Director General of Public Health

TO

## The Honourable The Minister for Health

(The Hon. A. H. JAGO, M.L.A.)

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Sir:

I have the honour to present my Annual Report for the year ended 31st December, 1970. Although the state of public health in New South Wales was stable during the year compared with previous years in comparison with such indices as the incidence of notifiable infectious diseases, maternal mortality, and perinatal mortality, etc., the amount of incapacitating acute minor communicable illness is still disturbing.

Whereas prior to the last 10–15 years influenza-type diseases occurred in predictable patterns and usually during the winter months these now tend to extend over all seasons, and with less pronounced peak incidence levels. Their immediate cause is often difficult to determine and relate to a very large number of viruses often associated with secondary bacterial infection.

In July, 1968 a further variant of the influenza virus called the A2/Hong Kong/68 virus, appeared in Hong Kong, and was the cause of a devastating epidemic involving some half-million persons in that territory. From there it spread to neighbouring Asian countries and to the Northern Territory of Australia, but only a few sporadic cases were reported from Sydney and Melbourne in that year. During the winter of 1969 the virus travelled rapidly around the countries of the Northern Hemisphere, and in most countries was comparatively mild except in the United States of America where there was a severe epidemic with the incidence and mortality resembling that of the original Asian influenza epidemic in 1957.

A few sporadic cases of “Hong Kong” influenza occurred in New South Wales early in June, 1969, followed by a rapid upsurge commencing in the first week of July and reaching its peak at the end of July. There was then a gradual decline over the next 3 to 4 weeks. During the period of increased prevalence sick absenteeism in the working force was about 10 per cent. The incidence in people over 65 years and in young children was low. Clinically the symptoms were, in most cases, not very severe, the acute phase lasting only 2 to 3 days and recovery being fairly rapid, but in a few cases the acute symptoms lasted 5 to 7 days and convalescence was slow.

Because of the absence of immunity to this strain it was anticipated there would be an increased prevalence from this cause during the colder months of 1970.

This outbreak occurred during the winter months between June and August spreading in a southerly direction from the northern section of the State. The city of Newcastle was particularly involved otherwise case distribution was patchy as regards the State and metropolitan areas of Sydney. In some areas and establishments, for causes unknown, the case rate of influenzal illness was very high whereas in contiguous areas and suburbs it was often quite low. What was surprising was the severity of symptoms compared with 1969. There was a number of fatal cases from influenzal-like illness, surprisingly occurring in middle age as well as older age groups.

In some of these fatal cases meningoencephalitis was present with confirmatory evidence of cause by isolation of the Hong-Kong strain of influenza virus from the cerebro-spinal fluid. In other fatal cases influenzal pneumonia was observed while in others there seemed to be a condition of viraemia.

Unfortunately, there are difficulties in isolating the virus, and not all these fatalities could be attributed to this single cause. 344 deaths were certified due to influenza. Of these about 20 were confirmed by laboratory findings as attributable to A2/Hong Kong/68 virus.

There is little doubt that the increased severity of influenza-like diseases during this period was due to the spread of this virus. From May to August, 1970, 238 isolations of the Hong Kong/68 strain were made. Additionally, virology studies established the serological diagnosis of A2/Asian type in 204 cases, and 18 cases of type B influenza. The pattern is further confused by the possibility of mixed infections, particularly with other viruses.

Perhaps even more disturbing is the continued prevalence of metabolic and degenerative diseases now becoming more frequent in age groups which previously were considered not to be susceptible. No longer can cancer and degenerative heart disease, for example, be considered to be essential causes of mortality and morbidity predominantly affecting the age group 60 years and over. More obvious is the trend to the occurrence of these conditions in early and late middle age. The epidemic of road deaths and injuries relating to traffic accidents continues unabated, and primary preventive measures as yet appear to be remote and unsuccessful. Likewise, indicators of social maladjustment and malfunction, such as venereal diseases, drug experimentation and addiction, are involving the younger age groups in the community, and measures of containment are at the most only partially successful.

It is in the areas of morbidity from trauma, chronic, and social diseases that substantial capital investments will need to be made by Government without thought of immediate return, but rather with the expectation that more remotely the returns will have significant economic influence on our system of hospitals and institutional medical care.

The study of modern causes of morbidity requires the collection of basic epidemiological data of prevalence, causation, and influence of social, economic, and ethnic factors. With this and other objectives in view the Division of Epidemiology has been restructured towards greater emphasis on special purpose surveys from which specific services and action may be structured. Dr S. Fisher, B.Sc., M.B., B.S., M.D., M.C.P.A., has been appointed Director, Division of Epidemiology, vice Dr H. C. Johnston, who retired towards the end of 1969.

I would like to take this opportunity of congratulating Dr E. S. A. Meyers on his succession to President of the Australian Medical Association (N.S.W. Branch). Dr Meyers succeeded to the presidency during a particularly stressful period for the medical profession, and the manner in which he has coped with this situation, in addition to the duties of his office of Director of State Health Services, reflects laudably on his personal and professional qualities. During the year I succeeded also as President of the Australian College of Medical Administrators.

In November, the State of New South Wales was honoured by the visit of Pope Paul VI. The Department was involved in organizing an emergency medical plan for the Masses held at the Randwick Racecourse. In this plan St Vincent's and the Prince of Wales Hospitals co-operated by providing resuscitation teams and hospital accommodation in anticipation of a major emergency. First-aid centres were established at the Randwick Racecourse, and staffed by medical officers from the Department with some assistance from the Guild of St Luke. Nursing staff was provided by the Catholic Nurses Guild, and equipment by the Government Stores Department and the hospitals under the administration of the Department. Fortunately, there were no major incidents among the large crowds which attended these Masses, due mainly to the admirable control exercised by the New South Wales Police Force and a cadre of voluntary marshals. The exercise might well be a prototype for the rapid organization and mobilization of resources in anticipation of coping with potential medical disaster situations arising from large aggregations of population.

In planning medical services for natural or accidental medical disasters of magnitude the Department, through the Police Medical Officer, Dr E. B. Pedersen, was active in the development of the Metropolitan Medical Disaster Plan, co-ordinating the resources of the New South Wales Police Force, the Ambulance Transport Service, and certain major metropolitan hospitals. The Department of Civil Aviation was also involved in that aspect of the plan which would relate to a catastrophe involving aircraft.

Preceding the development of this plan and because of the location of certain chemical firms in the region of the Mascot Aerodrome, the Division of Occupational Health assumed the initiative in stimulating several large industries in Sydney to prepare internal disaster plans within the boundaries of these industries. I would like to thank the industries concerned for their co-operation.

In my annual report for 1969 I mentioned at some length the report of a committee under the chairmanship of Dr Kenneth Starr proposing far-reaching recommendations in the organization of the Department, the Hospitals Commission, and the Ambulance Transport Board. Mr M. Totterdell has been seconded from the Hospitals Commission to propose in detail the brief to implement this report. A working party representative of the various sections involved within the Ministry of Health was also established, with Mr Totterdell as its executive member.

In preparation for this reorganization, the Government has accepted an amendment of the Private Hospitals Act whereby the administration of private hospitals and rest homes will be removed from the Board of Health to the Hospitals Commission. The system of private hospitals and rest homes now contributes some 21,000 beds to the total number of hospital beds, and represents well over 50 per cent of all hospital beds in New South Wales. It is important that this system of special hospitals be supervised in relation to the total facilities of the State. It is logical the Hospitals Commission should be the authority to undertake this supervision. There have been several representations during the year for financial support of the system of private nursing homes, the profitability of which has been considerably impaired by rising costs. This is a complex situation involving also the Commonwealth Government through the Commonwealth Department of Health, and the concept of nursing home and hospital benefits under the National Health Act.

In the summary of the activities of the Division of Tuberculosis it is pleasing to note a further decline in the occurrence of tuberculosis. The success of the Anti-Tuberculosis Campaign is such that an audit of existing procedures and organizations involved has become necessary. No longer is there a need for yearly mass X-ray surveys, nor is it desirable that both the Department and the Anti-Tuberculosis Association should each be involved in mass radiography. The Department has proposed to the Anti-Tuberculosis Association that it would surrender its role in case-finding to the association. In return the association would confine itself strictly to this role and its clinical activities would be transferred to the hospital system of the State. Negotiations are proceeding and an organization and methods team is active in preparing a report on the implications of this proposal. It would seem the reorganization will result in considerable economic savings with the abrogation of duplication of services, equipment, and staff.

The Clean Waters Act, which was introduced into Parliament in 1969, finally received assent in 1970. In preparation for the administration of this Act the Division of Occupational Health and Pollution Control has created a separate section to be staffed and equipped for this purpose. The Act will be proclaimed when the regulations have been prepared and approved by the Clean Waters Advisory Committee. It is hoped this stage will be reached in the latter half of 1971. With statutory control over water pollution, there remains but one further cause of pollution which is not involved in a formal statutory measure of control. I refer to pollution by noise. At present the Division of Occupational Health and Pollution Control is heavily involved in the analysis and correction of noisy situations in industry. It has the nucleus of skills and experience to extend its activities to community noise. I hope this extension will be accepted by Government in the coming year.

I am pleased to report that the amendment of the Public Health Act to provide for the compulsory notification of cancer by hospitals and radiation therapy departments has been approved by Parliament. This now makes possible the establishment of a Central Cancer Registry to determine the incidence and prevalence of cancer in New South Wales. This is the first situation in Australia of statutory notification of cancer, and to the best of my knowledge one of the few such in the world. Steps are being taken to obtain a Director for the Central Cancer Registry, following which the regulations will be prepared to provide for notification late in 1971. Probably the commencing date for notification will be January, 1972 so that cancer statistics can be collected on a calendar year basis for comparison with similar statistics published throughout the world. I am hopeful the information derived from the Central Cancer Registry will enable the Department and the N.S.W. State Cancer Council to mount a more effective campaign towards the early diagnosis and prevention of cancer.

In terms of cancer prevention the Papanicolaou Smear Campaign conducted by the Institute of Clinical Pathology and Medical Research has achieved the millionth smear since the introduction of the campaign. To mark this occasion a seminar on cervical cancer in women was held at the Sydney University. This seminar, sponsored by the Department, was well-attended by experts in the field of cancer—general practitioners, pathologists, epidemiologists, medical administrators, and members of the community.

The Public Health Campaign of vaccination against rubella of school girls aged 12 to 14 years was vigorously pursued during the year. Our experience in this campaign will enable us in succeeding years to decentralize the conduct of the regional areas. Unfortunately, there has been some misgivings in our obstetric hospitals in implementing the recommendation of the National Health and Medical Research Council that rubella vaccination should be offered to all women in the immediate post partum period. This apprehension is conditioned by the theoretical concepts that rubella vaccine might result in the transmission of the attenuated virus to other women in obstetric hospitals who are pregnant and/or to the nursing staff. As a consequence there has been little or no demand from obstetric hospitals for rubella vaccine. To clarify this situation I have referred the issue back to the National Health and Medical Research Council, which will make a further pronouncement on this and other recommendations early in 1971.

In preparation for the campaign against rubella the Institute of Clinical Pathology and Medical Research has considerably expanded its technical services to determine the state of immunity of the population at risk. It now provides service to a number of ante-natal clinics on a routine basis, as well as on demand from the practising profession in relation to private patients. Variations of techniques have been developed at the institute to increase the specificity of this test. The demands from routine ante-natal clinics have strained the capacity of the virology section of the institute. If the obstetric hospitals still persist in not immunizing women in the immediate post partum period there would seem to be no reason why routine estimations of anti-body response in the ante-natal period should continue.

As a matter of policy the Department will not offer on the basis of a public health campaign rubella vaccination to males. The disease is mild, and does not have the consequences in males as it does in females who are at risk in terms of transmission of the virus to the foetus during pregnancy. More pertinently the continued presence of wild virus will have a reinforcing effect on females who have been immunized either naturally or artificially, so increasing the immunity status of the community and the individual.

During 1970 the Investigating Committee as constituted under section 27A of the Medical Practitioners Act investigated eight complaints against doctors with the following decisions, viz.—referred to the Disciplinary Tribunal—one; caution or reprimand—one; dismissed or not relevant to the Medical Practitioners Act—6.

Again I must draw strongly to your attention the disadvantage in which the individual complainant is placed under this Act by the need to personally prosecute the complaint to the Disciplinary Tribunal. The disadvantage is not so obvious during the investigation by the Investigating Committee, as this committee is not restricted in its investigations to legal procedures and strict rules of evidence. However, once the complaint passes the Investigating Committee and is referred to the Disciplinary Tribunal the complainant is at a considerable disadvantage in presenting the complaint without legal representation. I would emphasize that most personal complaints which pass scrutiny of the Investigating Committee and proceed to the Disciplinary Tribunal have that element of infamous conduct which usually results from actions or associations between doctor and patient. Such complaints are usually of the type which in the past have resulted in the removal of the medical practitioner's name from the Medical Register. I can see no reason why, if the Investigating Committee by its action of reference to the Disciplinary Tribunal, has indicated that there is substance

in the complaint, that the Department could not assist by providing legal representation as an interim measure pending a permanent solution. If the latter involves amendment of the Medical Practitioners Act then I think it should be favourably considered. One such case of a scandalous nature lapsed before the Disciplinary Tribunal mainly due to this disadvantage to the complainant.

The Division of Maternal and Perinatal Studies now is formally established and subcommittees have been constituted to consider both maternal and perinatal mortality independently. Some criticism has been lodged against New South Wales by comparison of its maternal mortality rate with other States of Australia and certain overseas countries. I would draw your attention to the fact that these comparisons are not valid for two reasons—

- (1) New South Wales has adopted a procedure which ensures that every actual or potential maternal death is brought to the attention of the Special Committee Investigating Maternal Mortality.

The safeguards which are in operation in New South Wales to achieve this do not appear to be as effective in other States, or in certain other countries with lower maternal mortality rates; and

- (2) the rate in New South Wales is artificially high because of the inclusion within the definition of maternal mortality as maternal deaths of fatal episodes where pregnancy is a contributing, but not necessarily the primary factor. Thus hitherto in New South Wales a woman who died of pre-existing heart disease during pregnancy would be coded to the cause in pregnancy or labour as a maternal death. In other countries such as Great Britain the incident would be coded to heart disease, and would not be included in statistics of maternal mortality.

If a similar procedure is adopted in New South Wales the maternal mortality rate would be lower and more than comparable with rates in other countries, or States with which comparison is often made.

I draw your attention so to the apparent rise in perinatal deaths. I say apparent because there has been a change in definition of a still-born child which has increased the number of such children included in statistics of perinatal mortality. In consequent years the perinatal mortality rates will be comparable with 1969 and 1970, as the same criteria will apply under the compulsory notification of perinatal deaths. The rates are not comparable to previous years for these reasons, and the increase in 1970 is not valid in terms of such comparison.

Numerous complaints have been received from the practising medical profession on the action of the Department in restricting the publication and distribution of its booklet—*Healthy Motherhood*. Surveys by the Division of Maternal and Perinatal Studies have indicated that more than 50 per cent of obstetric confinements are carried out by general practitioners. It is essential that this publication, and its sister publication—*Our Babies* should be distributed to all doctors who are involved in obstetric care. Previously distribution was effected to the profession generally as well as to special groups, but restriction in the number of copies has caused a modification of this policy. Now the publication will be distributed only on demand to general practitioners. I hope this decision can be modified and that distribution will be at least to those general practitioners who are still active in obstetric practice, as well as to specialist obstetricians and gynaecologists.

I am grateful for the permission of yourself and the Government for me to accept the invitation to become a member of the Judicial Committee of Enquiry into Health Services in South Australia, and to act as World Health Organization Consultant to survey and advise on the organization of the Medical Services of the British Solomon Islands Protectorate. The former committee has met on one occasion, and will continue to meet at approximately monthly intervals over the next year. I was absent in the Solomon Islands for a period of approximately 2 months, and my report has been made to the World Health Organization, which organization will transmit it to the Administration of the British Solomon Islands Protectorate.

Further comment on the services under my administration is included under specific sectional headings.

### VITAL STATISTICS

The estimated population of New South Wales at the end of 1970 was 4,623,900 comprising 2,320,600 males and 2,303,300 females. The total increase in population was 94,000 including excess of births over deaths 44,847 and net migration 49,100. The crude birth rate rose marginally from the 1969 figure of 19·21 to 19·37. This was the third annual rise after six successive annual drops.

The number of stillbirths registered was 1,154 being 1·29 per cent of all births (live and still). There were 43,601 deaths for the year, including 1,743 infant deaths under 1 year of age. This gives a crude death rate of 9·55 per 1,000 of population (1969, 9·09) and an infant mortality rate of 19·71 per 1,000 live births (1969, 18·89).

There were twenty-two maternal deaths for the year.

## COMMUNICABLE DISEASES

A table showing the totals of diseases notified under the Public Health Act, 1968, will be found on page 19 of this report.

There were 2,851 cases of infectious hepatitis with 17 deaths. There was no marked seasonal prevalence.

During the year there were five cases of typhoid fever, all in the metropolitan area. Three cases were infected while travelling overseas. A boy aged 13 years was infected by his grandmother who was a chronic typhoid carrier; the fifth case was a woman from Sydney, and investigation failed to reveal the source of infection.

## VENEREAL DISEASE

There was a fall in the number of notifications of gonorrhoea; a total of 3,497 cases were notified compared with 4,010 in 1969—a decrease of 12·9 per cent.

Four hundred and forty-eight cases of syphilis were notified, a decrease of 1·1 per cent compared with last year which is not regarded as significant.

Although the reduction in the number of notifications has been going on for 3 to 4 years, it is still doubtful whether it reflects a real downward trend in the incidence of venereal disease, or is due to other factors, e.g., poorer notification. Two factors which might have some bearing on the lowering incidence are—(i) increased police anti-vice vigilance, and (ii) if the observed increase in notifications of women reflects an increase in the number of women being treated, then more sources of infection are being removed from the community.

## HANSEN'S DISEASE

On the 31st December, 1970 there were eight patients—five males and three females under treatment for leprosy as inpatients in the Institute of Tropical Medicine, Little Bay, and fifteen non-infectious cases were under domiciliary treatment and surveillance. Two new cases were notified; both were imported cases—one from India and the other from Burma. Both cases were tuberculoid type and no acid fast organisms were detectable from skin scrapings and biopsy specimens.

## POLIOMYELITIS

During the year one case of established paralytic poliomyelitis occurred in a 38-year-old man, who had not been immunized, which resulted in paralysis of the lower limbs.

## TUBERCULOSIS

Notifications of new cases of all forms of tuberculosis for 1970 (644) as compared with 1969 (670) showed a further decrease. There was an increase in the reactivated cases for 1970 (86); 1969 (55). Most of the reactivated group came from patients from the prechemotherapeutic era, or if later, with a history of insufficient or inadequate treatment.

An increase from 1·27 to 1·40 per 100,000 of deaths has occurred during the year. As in previous years the majority of deaths was in the over 50 age group.

Details of activities and statistics are set out in the Director's report.

## THE HEALTH DISTRICTS

### Western Metropolitan Health District

During 1970 the establishment of the Western Metropolitan Health District and the training of staff have continued, and the administration of the Baby Health Centres was formally handed over to the Medical Officer of Health and his staff.

The Medical Officer of Health of this district has been active in a programme of integration of public health activities with the hospitals in the area. He has served on several committees clarifying the role of the hospital in preventive medicine and primary medical care. It is hoped, as a result of these activities, a pilot regional scheme will be formulated.

Details of vital statistics and progress in this district are set out in the report of the Medical Officer of Health.

### The Rural Health Districts

Owing to financial restrictions in the State the health district to cover the Far Western shires of the State has not been established.

Details of vital statistics and activities of the Newcastle, South Coast, Western, North Western, North Coast, Riverina, and Broken Hill Health Districts are given by the Medical Officers of Health in their reports.

## HEALTH INSPECTION

The Health Inspection Branch at central administration is responsible to the Metropolitan Medical Officer of Health for the work carried out in the metropolitan area.

Regular inspections were made during the year of nightsoil and garbage depots in local authority areas. It was found that some councils were not disposing of garbage in accordance with conditions laid down by this Department to avoid the creation of nuisance. It was necessary to serve a notice under section 65 of the Public Health Act on one council to abate a continuing garbage nuisance.

Most of the numerous complaints received in the branch related to drainage nuisances and some serious public health hazards were investigated. In some instances the complainants had been unable to obtain satisfactory action from the local councils.

Public swimming pools were regularly inspected during the summer months and pool waters tested.

## FOOD INSPECTION

Two thousand five hundred and eighty-two samples of food of various kinds were purchased and submitted for analysis; 3,116 samples of meat and 2,325 samples of spirits were field tested by officers of the Branch. Four hundred and twenty-seven samples of food were found to be below the prescribed standard and 240 successful prosecutions were instituted against traders for selling adulterated food and food not of the nature demanded by the purchaser, resulting in the imposition of \$10,161 fines and costs.

One hundred and one tons of food, including large quantities of cheese, fish, prawns and nuts were seized and destroyed, in addition to 5,158 head of poultry, 12,423 bottles, cans and 15 cartons of assorted foods being unfit for human consumption.

Of 3,693 premises used for the storage, preparation or sale of food inspected, 138 notices were served on occupiers of premises which required some remedial action in the way of structural repairs or other action to comply with the provisions of the Act and regulations.

Thirty-four traders who failed to keep food premises clean were convicted and fined a total of \$3,096. Four of these premises were closed for a period of 14 hours to enable the premises to be cleared to the satisfaction of an officer. One other trader was required to remain closed for a period of 7 days before being cleared sufficiently to resume trading.

One hundred and twenty convictions were recorded and traders were fined \$3,826.

The total number of prosecutions instituted was 396 and fines and costs amounted to \$17,167. This amount in relation to the number of prosecutions is much higher due to the increased penalties for certain types of offences.

A record number of 1,908 complaints made by members of the public concerning food matters was investigated, many of which resulted in legal proceedings against food traders and persons delivering food in contravention of the regulations.

## PRIVATE HOSPITALS AND REST HOMES

I have mentioned previously in the report the important policy change in the projected transfer of the administration of the Private Hospitals Act from the Department of Health to the Hospitals Commission.

In the metropolitan area during 1970 the number of private hospitals has decreased by 5 to 87, and their bed capacity by 214 to 3,447. In the country areas the number has decreased by 3 to 27 and their bed capacity from 32 to 584. (114 private hospitals in New South Wales with 4,031 beds.)

The number of metropolitan rest homes has increased by 15 to 355 and their bed capacity by 1,590 to 14,372. The country rest homes have increased by 7 to 81, and bed capacity from 579 to 2,807. (436 rest homes in New South Wales with 17,179 beds.)

There were in New South Wales 550 private premises with accommodation for 21,210 patients (an increase of 1,933 patients for the year).

## POISONS BRANCH

The Therapeutic Goods Act is still being drafted, and it is hoped it will be ready for presentation to Parliament early in 1971.

The staff of the Poisons Branch has continued to make routine inspections of pharmacies and hospitals in the supervision of licit channels of drug distribution to minimize abuse of dangerous drugs.

There has been a significant increase in reported cases of breaking and entering warehouses, pharmacies, doctors' cars and surgeries in search of drugs of addiction. The branch has received the co-operation of the Police Crime Prevention Section which advised licensed manufacturers and wholesale distributors of drugs of addiction of security measures to protect stocks.

On the same principle the specification for a metal cabinet for storage of drugs in retail and hospital pharmacies has been developed, and in 1971 it is anticipated that a regulation will make the installation of these units compulsory.

One of the most significant measures in the control of soft drugs of addiction was the introduction in January of rigid controls over the prescribing of amphetamines and amphetamine-like substances. Already this has resulted in a dramatic decrease in the prescribing of these drugs thus reducing, both at wholesale and retail level, stocks which might be misused for purposes of abuse.

The supervision of section 28 of the Poisons Act by the Medical Committee advising me continued in a harmonious fashion during the year. At the end of the year some 960 authorities to prescribe drugs of addiction for therapeutic purposes were in force including authorities for prescribing of amphetamines. The number of therapeutic addicts as a result of medical therapy is low. These constitute no social problem.

There is an apparent increase in the number of authorities issued to prescribe drugs of addiction for addicts. This increase is due to the popularity of the use of methadone withdrawal for those drug addicts who are a social problem.

Further details of these and other activities of the Poisons Branch are contained in the individual report.

### **DIVISION OF ANALYTICAL LABORATORIES**

There were 7,955 milk samples examined during the year. The greatest number of samples was received from the Dairy Industry Authority of N.S.W. This statutory authority replaced the N.S.W. Milk Board in July, 1970 when control was extended over the production and sale of milk to the whole of the State of New South Wales. Two hundred and ten samples failed to comply with the regulations: 77 deficient in milk fat; 103 showed the presence of either added water or low milk solids not fat, and 30 samples were improperly pasteurized.

Four thousand four hundred and sixteen samples of meat and meat products, and 3,105 samples of sausages and sausage meat were examined. In addition a considerable number of samples was analysed for special purposes. These included several samples of frozen pre-packed steaks, which were found to contain an enzymatic tenderising agent, probably papain. The use of such preparations is not permitted in this State.

A record number of 1,710 samples were examined in the Food Bacteriology Section.

Rodent excreta was found in 12 samples of food, and a rodent's tail was found in a bag of potato chips. Three cases involved the contamination of food by bottles which had previously been used to store paint or solvents. This is a particularly dangerous practice as subsequent cleaning of bottles may not remove all traces of these substances.

During 1970 there was a 40 per cent increase in the number of cases examined in the Drug Section (304 cases). Most of these cases were submitted by the police involving the detection of substances restricted under the Poisons Act of N.S.W., and mostly relating to drug addiction.

The report of the Director and Government Analyst sets out in detail the activities and statistics of the division.

### **DIVISION OF FORENSIC MEDICINE**

This section performs autopsies upon all bodies coming under the jurisdiction of the City Coroner. There were 2,499 autopsies carried out during 1970, compared with 2,415 in 1969. The category of autopsies known as "external only" is no longer performed so each autopsy represents a fully detailed internal examination. Consequently, although the number of autopsies performed has only increased slightly the overall work load is heavier.

During the year arrangements were made to refer cases of sex assault to appropriate hospitals and then transfer to the Police Medical Officer's Department.

The cramped accommodation of the division in all sections continues to cause concern. It is expected, however, the new premises for the division will be occupied in mid-1971.

### **HEALTH EDUCATION**

The most significant development of the year was the provision of a financial grant from the Commonwealth for a State programme of health education aimed at preventing or mitigating the prevalent problem of abuse of drugs. The grant enabled the division to set up a special section to devise and implement a community-wide programme.

During the year the first appointment of a Health Education Officer was made to the Bureau of Maternal and Child Health. The task of this officer is to examine the health education role of Bureau staff and to introduce measures to further develop health education for parents and children.

There have been several variations of staff and reorganization of function within the Division of Health Education. Particularly in relation to the publication of visual and written material.

Details of the activities of the Division of Health Education during 1970 are set out in the Director's report.

## BUREAU OF MATERNAL AND CHILD HEALTH

Further integration of Maternal and Infant Care and Child Health Nursing services was possible during 1970 with the appointment of a Bureau Supervisor of Nursing.

Child Health Centre boundaries have been altered to co-incide with local government boundaries and as far as possible with boundaries for the psychiatric services, Department of Education, Department of Child Welfare and the proposed boundaries for the decentralization of hospital services.

The Queenscliff Health Centre is now well advanced and the building will be ready for occupation in mid 1971. Approval has been given to set up an integrated Maternal and Child Health Service for a small geographic area of Warringah Shire as a pilot study before this health centre is opened.

Unfortunately, with the involvement of the Bureau in the establishment of the Child Health Centres at Blacktown and Sutherland it is difficult to foresee any additional construction of Child Health Centres before the financial year 1973-74. As a consequence priority for Wollongong has been further back dated. This region has had a high priority for some years, and with its aggregation of population and mixture of ethnic groups deserves special and particular consideration.

An agreement was reached with the Division of Establishments for the transfer of the positions of Psychiatrists and Senior Child Psychiatrist from the bureau. Inherent in this transfer is the obligation on the Division of Establishments to provide continuity of service to the Child Health Centres.

### Section of Special Services

This section now acts in a consultative role to the Sections of Child Health and Maternal and Infant Care.

During the year, however, the diagnostic clinic for atypical children from country areas and those not catered for by Child Health Centres in the Sydney area was continued, and 195 new cases were seen and 67 reviewed.

Medical Officers attended 405 sessions in thirteen Baby Health Centres in the Sydney metropolitan area. A visit was made to Broken Hill by a diagnostic team of paediatricians, clinical psychologist, social worker, and speech therapist. In five working days the team examined 34 children—21 school age and 13 pre-school age. Referrals came from general practitioners, Broken Hill Hospital and the Department of Education. A team also visited Albury.

Details of other activities and statistics are given in the report on this section.

### Section of Child Health

From the 1st January, 1970, the supervision of the activities of this section in the Cabramatta, and Parramatta Child Health Centre areas, the Blacktown area, and the Camden and Campbelltown Shire areas, was transferred to the office of the Medical Officer of Health, Western Metropolitan Health District.

That part of the metropolitan area remaining under the supervision of the office of the Assistant Director included the Manly-Warringah and Sutherland areas, and the Child Health Centre areas of Bexley, Chatswood, Eastern Suburbs, Forest Lodge, Ryde and Yagoona.

Medical examination and immunization services to State wards in Child Welfare Department establishments and foster-homes in the metropolitan Child Health Centre areas were continued this year.

Screening of vision and hearing of children in Child Welfare Department Homes and Aboriginal Welfare Clinics was continued by two nursing sisters. Of the 3,909 children screened 395 children with hearing defects were found and 149 with visual defects.

Medical screening services to children in the pre-school age group at Well Baby Clinics and pre-school kindergartens has continued to expand. Six hundred and ninety-eight sessions were conducted at the fifteen Well Baby Clinics staffed by this section. The number of examinations increased slightly from 3,787 to 3,995.

The number of pre-school kindergartens receiving regular medical supervision increased. In the State, 222 kindergartens and day nurseries, including five day nurseries and eighteen pre-school kindergartens previously serviced by the Section of Maternal and Infant Care received medical supervision. The number of children examined totalled 9,204 and 1,478 defects were found.

Details of the activities and vital statistics are set out in the report of this section.

### Section of Maternal and Infant Care

The Section of Maternal and Infant Care continued during the year 1970 to maintain and promote preventive health services to mothers, infants, toddlers and pre-school children, and to encourage the use of Baby Health Centre premises for additional services with the objective of maintaining the total health of the family and the community at the highest possible level.

It was apparent that if a continuous service were to be provided at the pre-natal clinics, day nurseries and pre-school kindergartens the section would require assistance with staffing; and, in addition, if the services were to be conducted economically it was essential to re-zone into Child Health Centre areas. Accordingly, following an In-service Training Course at the Royal Hospital for Women four pre-natal clinics and seven preparation for parenthood classes were transferred for staffing to the appropriate Child Health Centres. In addition, five day nurseries and eighteen pre-school kindergartens previously supervised by this section were reallocated on a similar basis.

With the appointment of the Assistant Nurse Inspector to the Western Metropolitan Health District in 1970 forty-four Baby Health Centres were decentralized under the control of the Medical Officer of Health.

Up to the present it has not been possible to completely decentralize medical staff to conduct the eight pre-natal clinics and six preparation for parenthood classes located in the Western Metropolitan Health District. However, it is anticipated this will be possible early in 1971.

At the end of 1970 there were 442 Baby Health Centres operating in New South Wales consisting of 162 in the metropolitan area and 280 in the remainder of the State. One new centre was established; 3 were transferred to new premises; 6 were closed, and 2 services were temporarily suspended.

The ten pre-natal clinics continued to function and provided a valuable and essential service to public patients living in the metropolitan area. The clinics which are free operated on a weekly basis at the following Baby Health Centres: Parramatta (2), Liverpool (2), Green Valley, Manly, Dee Why, Blacktown, Mr Druitt and Villawood Migrant Hostel.

At the end of 1970 the Guthrie Test for inborn errors of metabolism has been introduced at twenty-one hospitals in the metropolitan area and thirty-five hospitals in the country. It is compulsory for all children to have a Guthrie Test prior to adoption.

For details of activities and vital statistics see the report on this section.

### MEDICAL EXAMINATION CENTRE

The functions of the centre have continued to expand during 1970. The centre commenced assessment for the Local Government Superannuation Board when consultation is required by that Authority.

Service is provided to eighty-two Public Service and allied service departments, and Police Medical Boards are arranged.

One feature of the year is a continuing increase in psychiatric examinations, and the high percentage of retirements from psychiatric causes. Arrangements were necessary during the year to provide additional sessions for psychiatric examinations because of this demand.

Other services and statistics are shown in the report on the centre.

### DENTAL SERVICES

As in recent years, during 1970 staffing problems continued particularly in country areas. Greater use was made of dental nurses trained in New Zealand, and now residing permanently in New South Wales. Vacancies for dental officers were filled by these personnel which enabled a therapeutic output to be achieved, although it was slightly less than in 1969.

Documented results show a remarkable improvement in dental health of children who have received maximum benefit from the adjusted fluoride content of the local potable water.

Concern must be expressed at the unsatisfactory dental health of quite a large proportion of migrant children. The attention of the Commonwealth authorities might be drawn to this factor, particularly when existing dental facilities are already over committed.

Again, it is very disappointing that no further advances have been made towards the establishment of a training school for dental nurses.

Details of the activities of this division are set out in the report of the Director.

## OCCUPATIONAL HEALTH AND POLLUTION CONTROL

The Division of Occupational Health and Pollution Control is a medical and scientific division providing advisory services to industry. Because of its involvement in the control of the pollution the title of the division was changed during the year from the Division of Occupational Health to the Division of Occupational Health and Pollution Control.

The division now comprises five branches viz., Industrial Hygiene; Medical; Radiation; Air Pollution Control; and Water Pollution Control.

The division's new and expanded premises at Lidcombe are now fully operational. Former premises at 86-88 George Street North will be used to house the Water Pollution Control Branch until new laboratories and office accommodation can be built.

During the year the staff was increased from fifteen to ninety. Dr D. C. Trainor, who had been with the division since 1958 retired from his position of Medical Officer. Dr Trainor made many contributions to professional literature, particularly in the field of toxicology, and his advice and guidance was repeatedly sought.

One of the pleasing developments in this division was the establishment of a Section on Industrial Psychology, and the appointment of an Industrial Psychologist in the Section on Ergonomics. Several very successful seminars were held on this aspect of ergonomics. I was privileged to open two of these seminars.

The Section on Industrial Psychology is co-operating with the Callan Park Hospital Community Team to assess the mental health and psychiatric aspects of a comprehensive service to industry in the South Sydney area.

The section is continuing to train industrial counsellors and provides an Industrial Psychology Consultant Service.

The Adviser-Occupational Health Nursing has been active during the year in organizing four educational sessions for practising occupational health nurses; visiting factories to establish the basic physical requirements for industrial health centres, and stimulating occupational health nurses in industry to develop preventive programmes.

In the field of air pollution one significant policy decision occurred which transfers the control of pollution from motor vehicles to the Clean Air Act. The Air Pollution Advisory Committee made two visits, i.e. to Newcastle and Wollongong to observe as cities the extent of pollution in these industrial complexes.

Further details and comparisons of the extent of air pollution and its source are given in the text of the Division's report, and are further elaborated in the Special Report to the Minister required under the Clean Air Act, 1961.

The Section on Radiation has been involved in the feasibility study with the Atomic Energy Commission on the establishment of a proposed reactor at Jervis Bay, and also in the survey sponsored by the National Health and Medical Research Council to determine the mean genetic dose of radiation to which the population of Australia is exposed.

Eleven articles were published overseas; four departmental publications were produced or revised; 837 lectures to approximately 12,000 people were given; 20 papers were delivered, and lectures were given at several agricultural field days, and at various training courses organised by the division on topics such as ergonomics, occupational health nursing, and occupational psychology.

Details of the activities and statistics of the Division are set out in the report hereunder.

## DIVISION OF MATERNAL AND PERINATAL STUDIES

I have mentioned in my preliminary remarks the principles involved in the qualification and compilation of maternal mortality and peri-natal mortality rates.

Additional emphasis has been given within the Division of Maternal and Peri-natal Studies to the further dissection of cases of peri-natal mortality by the appointment of two neo-natal paediatricians to the Special Committee Investigating Maternal and Peri-natal Deaths, and by the establishment of a sub-committee to concentrate on peri-natal mortality.

The staffing needs of the division will require re-consideration as the emphasis on peri-natal studies continues because of the considerable numbers involved as compared with the investigation of maternal deaths.

The Special Committee Investigating Maternal and Peri-natal Mortality was concerned with the need to conserve clinical material in the teaching obstetric hospitals for the training of undergraduate and graduate doctors and nurses. It has made several important recommendations which have been distributed to Nurses' Registration Boards throughout Australia, and also to the Deans of Medical Schools at the Universities of Sydney and New South Wales.

Among the surveys sponsored by the Maternal Sub-Committee of the Maternal and Perinatal Mortality Committee, which have either been completed or are in progress are:

Caesarean Section Follow-up Survey.

Eclampsia—A retrospective study over 10 years of the incidence of eclampsia, and a study of maternal deaths for the same period from eclampsia and severe pre-eclampsia.

Thrombo-embolic phenomena—incidence in both obstetric and surgical hospitals in order to determine the value of a prospective study.

Report on maternal deaths for the triennia, 1964–1966 and 1967–69.

The report of this division sets out in detail these highlights and many other activities in which the division is involved.

## THE INSTITUTE OF CLINICAL PATHOLOGY AND MEDICAL RESEARCH

The Institute of Clinical Pathology and Medical Research was established in 1959 and provides a comprehensive clinical pathology service for the whole of the State of New South Wales available free of charge to all public and state hospitals, and to medical practitioners attending patients unable to afford the fees of a private pathologist.

Specimens for investigations not otherwise available in the State are accepted without financial restriction, while the Exfoliative Cytology, Venereal Disease Serology, and Virology Departments also provide a free service which is generally available. I have already commented on the volume of work being carried out in exfoliative cytology, and in providing routine haemagglutination anti-body tests against rubella for ante-natal clinics. Correspondingly other sections are having increased demands upon their services, all of which has created a situation of crisis in terms of physical space. Discussions are taking place with a view to increasing the size of the institute, or alternatively to develop a decentralized series of laboratories in selected country areas, and conserving the expertise at the institute for special purposes and reference situations, plus routine services to the Lidcombe State Hospital and a section of the metropolitan area. The latter alternative is, as yet, only in its formative stages, and no policy decisions have been reached other than the need to establish a decentralised laboratory in the Riverina Health District located at Wagga Wagga. Provision is being made on the estimates for 1971–72 for funds to establish this laboratory. If this provision is made it is intended that the staff of the Pathology Laboratory in the Riverina area will be drawn from the staff of the institute.

Because of the large volume of work passing through the institute consideration has been given to the possibility of charging a fee for tests carried out, or alternatively claiming a fee under the National Health Act. There are substantial difficulties in accepting either of these alternatives, and the question of recoupment of expense is at present in abeyance.

The institute undertakes the training of medical technologists and doctors wishing to specialize in clinical pathology and, in addition, carries out medical research in the various specialised branches of laboratory medicine.

Twenty-one publications to scientific journals were made by members of the staff of the institute during the year, and twenty-two addresses to learned societies were delivered.

Details of the various activities of the institute and statistics are set out in the report of the Director under the following headings—A. Clinical Pathology Service, B. Training of Pathologists and Medical Technologists, and C. Research.

The reports of the individual Divisions and Sections of my administration follow.

Yours faithfully,

C. J. CUMMINS,  
Director General of Public Health.

VITAL STATISTICS

TABLE I—VITAL STATISTICS BY HEALTH DISTRICTS, 1970

	Health District	Estimated population 30th June, 1970	Live- births  (a)	Deaths				Still- births  (c)	
				All ages  (a)	Under 1 year (b)	Under 1 month (b)	Under 1 week (b)		
Numbers	Metropolitan .. .. .	2,015,410	36,186	21,204	668	499	458	467	
	Western Metropolitan .. .	754,350	16,915	5,150	355	253	233	210	
	Newcastle .. .. .	540,760	10,322	6,025	190	147	131	134	
	South Coast .. .. .	354,260	6,922	2,802	129	100	93	101	
	North Coast .. .. .	156,730	2,788	1,585	60	47	45	38	
	Western .. .. .	272,210	5,823	2,878	137	99	91	79	
	North Western .. .. .	164,850	3,495	1,454	88	65	57	50	
	Riverina .. .. .	260,180	5,267	2,166	107	90	87	71	
	Broken Hill .. .. .	30,620	610	303	8	8	8	3	
	Remainder of State .. ..	5,390	120	34	1	1	1	1	
	Migratory .. .. .	12,240	..	..	..	..	..	..	
	New South Wales {	Males ..	2,293,700	45,217	24,123	1,067	817	759	643
		Females ..	2,273,300	43,231	19,478	676	492	445	511
		Persons ..	4,567,000	88,448	43,601	1,743	1,309	1,204	1,154
Rates	Metropolitan .. .. .		17.95	10.52	18.46	13.79	12.66	12.74	
	Western Metropolitan .. .		22.42	6.83	20.99	14.96	13.77	12.26	
	Newcastle .. .. .		19.09	11.14	18.41	14.24	12.69	12.82	
	South Coast .. .. .		19.54	7.91	18.64	14.45	13.44	14.38	
	North Coast .. .. .		17.79	10.11	21.52	16.86	16.14	13.45	
	Western .. .. .		21.39	10.57	22.53	17.00	15.63	13.39	
	North Western .. .. .		21.20	8.82	25.18	18.60	16.31	14.10	
	Riverina .. .. .		20.24	8.33	20.32	17.09	16.52	13.30	
	Broken Hill .. .. .		19.92	9.90	13.11	13.11	13.11	4.89	
	Remainder of State .. ..		22.26	6.31	8.33	8.33	8.33	8.26	
	New South Wales .. .. .		19.37	9.55	19.71	14.80	13.61	12.88	

- (a) Rates per 1,000 of mid-year population.
- (b) Rates per 1,000 live-births.
- (c) Rates per 1,000 total births (live and still).

TABLE II—ESTIMATED POPULATION AND ELEMENTS OF INCREASE, 1970

			Population at end of year	Population mean for year	Excess of births over deaths	Net migration	Total increase
Males ..	..	..	2,320,600	2,297,000	21,094	25,900	47,000
Females	..	..	2,303,300	2,278,100	23,753	23,200	47,000
Persons	..	..	4,623,900	4,575,100	44,847	49,100	94,000

TABLE III—CRUDE BIRTH RATE: 1965-1970

Year	Live births per 1,000 mean population
1965	18.71
1966	18.35
1967	18.30
1968	18.62
1969	19.21
1970	19.33

TABLE IV—DEATHS FROM SELECTED CAUSES, 1965-1970

I.C.D. revision and year			Number of deaths			Rate per million of mean population		
			Males	Females	Persons	Males	Females	Persons
<i>Neoplasms (7th Rev. 140-239, 8th Rev. 140-239)</i>								
7th Rev.	..	..	1965 3,157	2,588	5,745	1,498	1,239	1,369
			1966 3,332	2,675	6,007	1,569	1,268	1,419
			1967 3,363	2,756	6,119	1,555	1,284	1,420
8th Rev.	..	..	1968 3,565	2,824	6,389	1,619	1,292	1,456
			1969 3,592	2,903	6,495	1,597	1,301	1,450
			1970 3,828	3,031	6,859	1,666	1,331	1,499
<i>Neoplasms of Trachea, Bronchus and Lung (7th Rev. 162, 163 includes pleura, 8th Rev. 162 excluding pleura)</i>								
7th Rev.	..	..	1965 805	139	944	382	67	225
			1966 883	120	1,003	416	57	237
			1967 901	152	1,053	417	71	244
8th Rev.	..	..	1968 959	136	1,095	436	62	250
			1969 1,038	146	1,184	462	65	264
			1970 1,057	198	1,255	460	87	274
<i>Ischaemic Heart Disease (7th Rev. 420-422, 8th Rev. 410-414)</i>								
7th Rev.	..	..	1965 7,707	5,276	12,983	3,656	2,527	3,094
			1966 7,989	5,433	13,422	3,761	2,575	3,170
			1967 7,780	5,302	13,082	3,598	2,470	3,036
8th Rev.	..	..	1968 7,786	5,196	12,982	3,536	2,377	2,959
			1969 7,716	5,025	12,741	3,431	2,253	2,844
			1970 7,922	5,311	13,233	3,449	2,331	2,892
<i>Cerebrovascular Disease (7th Rev. 330-334, 8th Rev. 430-438)</i>								
7th Rev.	..	..	1965 2,273	3,124	5,397	1,078	1,496	1,286
			1966 2,351	3,208	5,559	1,107	1,520	1,313
			1967 2,273	3,158	5,431	1,051	1,471	1,260
8th Rev.	..	..	1968 2,539	3,543	6,082	1,153	1,621	1,386
			1969 2,518	3,387	5,985	1,120	1,518	1,318
			1970 2,620	3,700	6,320	1,141	1,624	1,381
<i>Pneumonia (7th Rev. 490-493, 8th Rev. 480-486 includes pneumonia of newborn)</i>								
7th Rev.	..	..	1965 806	570	1,376	382	273	328
			1966 898	691	1,589	423	328	375
			1967 733	559	1,292	339	260	300
8th Rev.	..	..	1968 459	407	866	208	186	197
			1969 486	392	878	216	176	196
			1970 668	567	1,235	291	249	270
<i>Bronchitis (7th Rev. 500-502 bronchitis acute, unqualified, chronic, 8th Rev. 490-493 bronchitis unqualified and chronic, emphysema, asthma)</i>								
7th Rev.	..	..	1965 704	157	861	334	75	205
			1966 858	173	1,031	404	82	244
			1967 807	177	984	373	82	228
8th Rev.	..	..	1968 1,156	318	1,474	525	145	336
			1969 1,160	285	1,445	516	128	323
			1970 1,343	333	1,676	585	146	366
<i>Motor Vehicle Accidents (7th Rev. E810-E835, 8th Rev. E810-E823)</i>								
7th Rev.	..	..	1965 851	315	1,166	404	151	278
			1966 817	328	1,145	385	155	270
			1967 861	291	1,152	398	136	267
8th Rev.	..	..	1968 941	324	1,265	427	148	288
			1969 903	345	1,248	402	155	279
			1970 1,012	363	1,375	441	159	301
<i>Accidents other than Motor Vehicle Accidents (7th Rev. E800-E802, E840-E962. 8th Rev. E800-E807, E825-E949)</i>								
7th Rev.	..	..	1965 745	398	1,143	353	191	272
			1966 710	417	1,127	334	198	266
			1967 796	437	1,233	368	204	286
8th Rev.	..	..	1968 702	403	1,105	319	184	252
			1969 658	367	1,025	293	165	229
			1970 654	408	1,062	285	179	232

TABLE V—CAUSES OF DEATH, NEW SOUTH WALES, 1970

Class	I.C.D. Nos.	Cause of Death	Number of Deaths			Rate per Million of Mean Population		
			Males	Females	Persons	Males	Females	Persons
I	000-136	Infective and Parasitic Diseases .. .. .	177	114	291	77	50	64
II	140-239	Neoplasms .. .. .	3,828	3,031	6,859	1,667	1,330	1,499
III	240-279	Endocrine, Nutritional and Metabolic Diseases ..	325	491	816	141	216	178
IV	280-289	Diseases of the Blood and Blood-Forming Organs ..	36	52	88	16	23	19
V	290-315	Mental Disorders .. .. .	153	116	269	67	51	59
VI	320-389	Diseases of the Nervous System and Sense Organs ..	207	177	384	90	78	84
VII	390-458	Diseases of the Circulatory System .. .. .	12,794	11,605	24,399	5,570	5,094	5,333
VIII	460-519	Diseases of the Respiratory System .. .. .	2,397	1,193	3,590	1,044	524	785
IX	520-577	Diseases of the Digestive System .. .. .	526	419	945	229	184	207
X	580-629	Diseases of the Genito-Urinary System .. .. .	374	437	811	163	192	177
XI	630-678	Complications of Pregnancy, Childbirth and Puerperium .. .. .	..	22	22	..	10	5
XII	680-709	Diseases of the Skin and Subcutaneous Tissue ..	11	11	22	5	5	5
XIII	710-738	Diseases of the Musculoskeletal System and Connective Tissue .. .. .	55	106	161	24	47	35
XIV	740-759	Congenital Anomalies .. .. .	254	191	445	111	84	97
XV	760-779	Certain Causes of Perinatal Morbidity and Mortality	658	395	1,053	286	173	230
XVI	780-796	Symptoms and Ill-defined Conditions .. .. .	143	106	249	62	47	54
XVII	E800-E999	Accidents, Poisonings and Violence (External Cause)	2,185	1,012	3,197	951	444	699
	000-E999	All Causes .. .. .	24,123	19,478	43,601	10,502	8,550	9,530

TABLE VI—CAUSES OF DEATH OF INFANTS UNDER ONE YEAR OF AGE, NEW SOUTH WALES, 1970

I.C.D. Nos	Cause of Death	Number of Deaths			Rate per 1,000 of Live Births		
		Males	Females	Persons	Males	Females	Persons
000-136	Infective and Parasitic Diseases .. .. .	41	17	58	0.91	0.39	0.66
320	Meningitis, except Meningococcal and Tuberculous ..	2	3	5	0.04	0.07	0.06
466	Acute Bronchitis and Bronchiolitis .. .. .	5	5	10	0.11	0.12	0.11
480-486	Pneumonia .. .. .	69	53	122	1.53	1.23	1.38
740-759	Congenital Anomalies .. .. .	174	124	298	3.85	2.87	3.37
760-761	Maternal Causes unrelated to Pregnancy .. .. .	39	20	59	0.86	0.46	0.67
762	Toxaemias of Pregnancy .. .. .	30	9	39	0.66	0.21	0.44
764-768	Difficult Labour .. .. .	39	29	68	0.86	0.67	0.77
763, 769	Other Complications of Pregnancy and Childbirth ..	146	114	260	3.23	2.64	2.94
770, 771	Conditions of Placenta and Umbilical Cord .. .. .	141	73	214	3.12	1.69	2.42
772	Birth Injury without mention of Cause .. .. .	17	9	26	0.38	0.21	0.29
774, 775	Haemolytic Disease of Newborn .. .. .	15	7	22	0.33	0.16	0.25
776	Anoxic and Hypoxic Conditions not elsewhere classified .. .. .	136	84	220	3.01	1.94	2.49
777	Immaturity, Unqualified .. .. .	80	39	119	1.77	0.90	1.35
773, 778	Residue of Certain Causes of Perinatal Morbidity and Mortality .. .. .	12	8	20	0.27	0.19	0.23
Residue of 140-796	All other Causes except Accidents, Poisonings and Violence .. .. .	65	37	102	1.44	0.86	1.15
E800-E999	Accidents, Poisonings and Violence .. .. .	56	45	101	1.24	1.04	1.14
	All Causes .. .. .	1,067	676	1,743	23.60	15.64	19.71

TABLE VII—CAUSES OF PERINATAL \*DEATHS, NEW SOUTH WALES, 1970

I.C.D. Nos	Cause of Death	Number of Deaths			Rate per 1,000 of All †Births		
		Males	Females	Persons	Males	Females	Persons
000-136	Infection of Foetus and Newborn .. .. .	13	1	14	0.28	0.02	0.16
480-486	Pneumonia .. .. .	5	5	10	0.11	0.11	0.11
740-759	Congenital Anomalies .. .. .	178	134	312	3.88	3.06	3.48
760	Chronic Circulatory and Genito-urinary Disease in Mother .. .. .	17	11	28	0.37	0.25	0.31
761	Other Maternal Conditions unrelated to Pregnancy ..	76	42	118	1.66	0.96	1.32
762	Toxaemias of Pregnancy .. .. .	74	50	124	1.61	1.14	1.38
763	Maternal Ante- and Intrapartum Infection .. .. .	5	4	9	0.11	0.09	0.10
764-768	Difficult Labour .. .. .	61	42	103	1.33	0.96	1.15
769	Other Complications of Pregnancy and Childbirth ..	209	160	369	4.56	3.66	4.12
770	Conditions of Placenta .. .. .	312	205	517	6.80	4.69	5.77
771	Conditions of Umbilical Cord .. .. .	80	69	149	1.74	1.58	1.66
772, 773	Birth Injury without mention of Cause .. .. .	20	10	30	0.44	0.23	0.33
774, 775	Haemolytic Disease of Newborn .. .. .	48	27	75	1.05	0.62	0.84
776	Anoxic and Hypoxic Conditions not elsewhere classified .. .. .	154	101	255	3.36	2.31	2.85
777	Immaturity, Unqualified .. .. .	87	47	134	1.90	1.07	1.50
778, 779	Other Conditions of Foetus and Newborn .. .. .	87	67	154	1.90	1.53	1.72
Residue of 140-796	Other Diseases of Foetus and Newborn .. .. .	29	21	50	0.63	0.48	0.56
E800-E999	External Causes of Injury to Newborn .. .. .	5	7	12	0.11	0.16	0.13
	All Causes .. .. .	1,460	1,003	2,463	31.84	22.93	27.49

\* Foetuses born dead, after completion of at least 20 weeks gestation, or weighing at least 400 grammes at delivery, and deaths of live-born children within 28 days after birth.

† Live births plus stillbirths.

COMMUNICABLE DISEASES

NOTIFIABLE INFECTIOUS DISEASES RECORDED IN NEW SOUTH WALES DURING THE YEAR 1970 UNDER THE PUBLIC HEALTH ACT, 1902, CASES AND DEATHS  
CLASSIFIED BY HEALTH DISTRICTS, COMPARED WITH 1969 TOTALS

Health Districts	Population 30th June, 1970 (thousands)	Acute Anterior Poliomyelitis		Brucellosis		Hydatid Disease		Infantile Diarrhoea		Infectious Hepatitis		Leptospirosis		Malaria		Ornithosis	
		C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.
Metropolitan ..	2,015	1	..	..	..	..	..	15	7	689	7	1	..	31	..	..	..
Western Metropolitan	754	..	..	..	..	..	..	9	3	647	3	2	..	25	..	..	..
Newcastle ..	541	..	..	..	..	..	..	1	2	313	2	..	..	..	..	..	..
South Coast ..	354	..	..	..	..	..	..	1	3	335	3	..	..	1	..	..	..
North Coast ..	157	..	..	..	..	..	..	2	..	93	..	4	..	1	..	..	..
Western ..	272	..	..	..	..	..	..	6	1	370	1	8	..	4	..	..	..
North Western	165	3	..	..	..	3	..	6	..	146	..	3	..	3	..	..	..
Riverina ..	260	..	..	..	..	2	..	..	1	225	1	1	..	2	..	..	..
Broken Hill ..	31	..	..	..	..	..	..	..	..	25	..	..	..	..	..	..	..
Remainder of State ..	5	..	..	..	..	..	..	..	..	8	..	..	..	..	..	..	..
Total for New South Wales { 1970	4,567†	1	Nil	22	Nil	18	2	509	17	2,851	17	19	Nil	69	Nil	3	Nil
1969	4,475	2	Nil	17	Nil	30	3	449	20	2,820	20	10	Nil	63	Nil	1	Nil

Health Districts	Q Fever		Tetanus		Tuberculosis		Typhoid Fever		Typhus Fever		Virus Encephalitis		The following notifiable infectious diseases were not recorded in 1970		Totals for 1969	
	C.	D.	C.	D.	New Cases	Reacti- vated	C.	D.	C.	D.	C.	D.				
Metropolitan ..	..	..	..	..	355	47	5	..	1	..	9	5	Anthrax ..	..	..	..
Western Metropolitan	..	..	..	..	67	8	..	..	..	..	5	3	Arbovirus Diseases	..	..	..
Newcastle ..	1	..	3	2	58	16	..	..	..	..	6	..	Cholera ..	..	..	..
South Coast ..	..	..	..	..	41	7	..	..	..	..	1	1	Diphtheria ..	..	..	..
North Coast ..	3	..	3	..	35	2	..	..	2	..	1	1	Leprosy ..	..	..	..
Western ..	23	..	1	..	31	..	..	..	..	..	5	2	Paratyphoid Fever	..	..	..
North Western	5	..	..	..	22	1	..	..	..	..	5	1	Plague ..	..	..	..
Riverina ..	..	..	..	..	16	3	..	..	..	..	1	..	Smallpox ..	..	..	..
Broken Hill ..	..	..	..	..	11	2	..	..	..	..	..	..	Yellow Fever	..	..	..
Remainder of State ..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Total for N.S.W. { 1970	33	Nil	7	2	644*	86	5	Nil	3	Nil	33	13	..	..	..	..
1969	10	Nil	5	4	670	55	9	Nil	1	Nil	29	7	..	..	..	..

† Total includes 12 thousand migratory. Items rounded to nearest thousand.  
• Total cases includes 7 imported, not included in Health District.

DIVISION OF EPIDEMIOLOGY

Director: S. FISHER, M.D., B.S., B.Sc., M.R.C.P.A. (from 16th February)  
Deputy Director: W. A. LOPEZ, M.C., M.B., D.P.H., D.I.H., F.A.C.M.A. (from 16th February;  
Acting Director, 1st January to 15th February)  
Location: 93 Macquarie Street, Sydney

The division is responsible for the general epidemiology of infectious diseases, including the collection, collation, and publication of statistics of those diseases which are notifiable under the Public Health Act, 1902, as amended. This function was transferred in June, 1970, from 9-13 Young Street, to the Macquarie Street premises. The division provides consultative services on all aspects of the control of communicable diseases, including immunization to hospitals, medical practitioners, district medical officers of health, other divisions of the Department of Health, other governmental departments and the general public. During the year, liaison was maintained with the Commonwealth Department of Health. Lectures were given to university undergraduates, nursing colleges, and other bodies interested in the epidemiology of infectious diseases.

Under the direction of the Commissioner, Venereal Diseases Act, 1918, as amended, the division is responsible for the administration of that Act and also conducts the Departmental Venereal Diseases Clinic for males, staffed by two full-time medical officers, two social workers, clinic attendants, and clerical staff. During the year, approval was obtained to establish a clinic for females in contiguity with the male clinic, and to staff it with a medical officer, a nursing sister, and a nursing aide; plans for the necessary alterations are now complete.

GENERAL EPIDEMIOLOGY

During 1970, the following infectious diseases were reported under the Public Health Act, 1902, as amended:

	Metropolitan (Included Western Metropolitan Health District)		Rest of State	
	Cases	Deaths	Cases	Deaths
Acute Anterior Poliomyelitis .. ..	1	..	..	..
Brucellosis .. ..	2	..	20	..
Encephalitis, viral .. ..	14	8	19	5
Hydatid disease .. ..	2	..	16	2
Infantile diarrhoea .. ..	365	24	144	16
Infectious hepatitis .. ..	1,336	10*	1,515	7*
Leptospirosis .. ..	3	..	16	..
Malaria .. ..	56	..	13	..
Ornithosis .. ..	1	..	2	..
“Q” Fever .. ..	1	..	32	..
Tetanus .. ..	..	..	7	2
Tuberculosis (new cases) .. ..	422	40	222	24
Tuberculosis (re-activated) .. ..	55	..	31	..
Typhoid fever .. ..	5	..	..	..
Typhus .. ..	1†	..	2†	..
Syphilis (all forms) .. ..	430	..	18	..
Gonorrhoea .. ..	3,193	..	304	..
Gonorrhoeal ophthalmia .. ..	2	..	1	..
Lymphogranuloma venereum .. ..	6	..	..	..

\* Including 1 death from Serum Hepatitis in the metropolitan area and 1 death from Serum Hepatitis in the rest of State.  
† Two scrub typhus. One murine typhus.

Influenza

An outbreak of influenza caused by the A2/Hong Kong/68 strain of virus occurred during the winter months, between June and August. It spread in a southerly direction from the northern part of the State. The case distribution was patchy, both as regards the State and metropolitan Sydney; in some areas and establishments (e.g., schools) the case rate of influenza-like illness was very high. In some of the fatal cases, meningoencephalitis was present, virus being isolated from the cerebrospinal fluid on the brain; in one case, viraemia was evident from the isolation of virus from the urine. Typical influenzal pneumonia was also observed; in a carefully documented case of fatal viral pneumonia, however, influenza virus could not be isolated while serological evidence suggested an adenovirus infection. This occurrence illustrates the difficulty of assessing the proportion of true influenza during the outbreak, since laboratory confirmation of the diagnosis was not, as a rule, attempted in most affected areas. However, in places where virological information was sought systematically, a characteristic clinical profile emerged. 344 deaths were certified due to influenza. Of these about 20 were confirmed by laboratory findings as attributable to A2/Hong Kong/68 virus.

Recommendations for vaccination have been modified since 1969; vaccination was advised for (i) those with certain types of chronic cardiac and respiratory disease; (ii) those with other illnesses of generally debilitating nature; (iii) those over the age of 65 years. The composition of the vaccine had not been changed since 1969. No serious untoward reactions were noted; this was as expected since the vaccine was of a highly purified (sub-unit) type. The number of doses issued was 360,000.

From May to August, 1970, 238 isolations of A2/Hong Kong/1968 strain and 1 of B type were made. Serological diagnosis of A2 type influenza were made in 204 cases. After August, 18 cases of influenza type B were diagnosed serologically.

### **Poliomyelitis**

During the year, one case of established paralytic poliomyelitis occurred, in a 38-year-old bricklayer who had never been immunized. It resulted in paralysis of the lower limbs.

### **Infectious Hepatitis**

During the year 2,851 cases and 17 deaths from infectious hepatitis were notified in the State, as compared with 2,821 cases and 21 deaths notified in 1969. There was no marked seasonal prevalence. In general the disease moved at a leisurely pace through the community, and there were no explosive single-source type of outbreaks. Occasionally there was an aggregation of cases in a locality, usually connected with a school or hostel, or even a large business office, but investigation of such outbreaks usually showed a person-to-person spread. Since 17th September, 1970, the Red Cross Blood Transfusion Service in the metropolitan area has screened the blood of all donors for the Au (Australia) antigen, and has excluded all those found positive. The incidence of Au positive blood donors is about 1 in 1,000.

### **Typhoid Fever**

Five cases of typhoid fever were notified during 1970, all in the metropolitan area. Three cases were infected while travelling overseas, one each in India, Italy, and Hawaii. One, a boy aged 13 was infected by his grandmother who was a chronic typhoid carrier. She had had a fairly severe undiagnosed fever as a young woman. She was cured of her carrier state following cholecystectomy and treatment with ampicillin for 10 weeks. The fifth case was a woman aged 52 from Sydney. Investigations failed to reveal the source of infection.

### **Immunization against Rubella**

Early during 1970, the Commonwealth Government offered the States rubella vaccine for immunization campaigns. The vaccine chosen was one prepared from the cendehill strain of virus which had been attenuated to a rather high degree. In New South Wales, it was decided to conduct an immunization campaign in girls' high schools in 1971, and to include in it as many as possible of the girls who had attained their 12th, but not their 15th birthday and were in second and third forms. The vaccine was also offered, free of charge, through hospitals with maternity beds, for the immunization of women immediately post partum; supplies were made available for this purpose during the second-half of 1970.

The vaccine may also be purchased from retail chemists, with a doctor's prescription and can thus be administered by doctors at their discretion to women of child-bearing age who are not offered immunization under the schemes outlined above.

No attempt is being made to eradicate the disease and the immunization of males is not considered necessary.

### **Hansen's Disease**

On the 31st December, 1970, there were eight patients—five males and three females—under treatment for leprosy as in-patients in the Institute of Tropical Medicine, Little Bay, and fifteen non-infectious cases were under domiciliary treatment and surveillance. During the year, two cases were discharged from the Institute of Tropical Medicine, one to return to her home in the New Hebrides, and one to domiciliary treatment. Two new cases were notified in 1970. Both were imported cases, one from India and one from Burma. Both cases were tuberculoid type, and no acid fast bacilli were detectable from skin scrapings and biopsy specimens.

The division keeps all family contacts of cases, under regular surveillance.

Liaison is maintained with the Physician-in-Charge, Infectious Diseases Division, Prince Henry Hospital, and the Professor of Tropical Medicine at the University of Sydney's School of Public Health and Tropical Medicine.

VENEREAL DISEASES

Again, there was a fall in the number of notifications of gonorrhoea during the year. A total of 3,497 cases were notified compared with 4,010 in the previous year—a decrease of 12·9 per cent. The number of cases of gonorrhoea treated in the clinic also decreased by 7·9 per cent.

Four hundred and forty-eight cases of syphilis were notified in 1970, compared with 453 in 1969—a decrease of 1·1 per cent which is not regarded significant. The changes in the number of notifications for the past 10 years are shown below:

Year	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961
Gonorrhoea notification ..	3,497	4,010	4,943	4,231	4,445	3,929	3,937	3,625	3,736	3,296
Syphilis notification ..	448	453	513	606	553	601	399	499	447	569

Although this reduction in the number of notifications has been going on for 3 or 4 years, it is still doubtful whether it reflects a real downward trend in the incidence of venereal disease, or is due to other factors, e.g., poorer notification. Two factors which might have some bearing on the lowering of incidence are, firstly, increased police anti-vice vigilance, including the closing down of brothel areas; and, secondly, if the observed increase in notifications of women reflects an increase in the number of women being treated, then more sources of infection are being removed from the community. In 1969, the sex ratio for gonorrhoea notification was 4·3 males to 1 female; in 1970, the sex ratio was 4·1 males to 1 female.

Divisional V.D. Clinic

This clinic is for the diagnosis and treatment of venereal diseases for males. In 1970, of all the cases of venereal disease notified in the whole of New South Wales, more than half (58·0 per cent) of the male cases of gonorrhoea and nearly one-third (32·3 per cent) of the male cases of syphilis were treated at the clinic.

Eight thousand, four hundred and sixty-two patients presented themselves at the clinic for examination during the year, a rise of 2·9 per cent compared with the previous year. Of these 1,742 (20·6 per cent) were found to be suffering from notifiable venereal disease.

The number of cases of non-gonococcal urethritis (which is not notifiable) treated in the clinic for the past 3 years are shown below:

	1968	1969	1970
No. of cases of N.G.U. .. .. .	2,920	2,390	2,816

The total number of attendances at the clinic was 38,413—about 5,000 fewer than in the previous year. This reduction may be partly accounted for by the decrease in the number of follow-up visits in the treatment of gonorrhoea now required from the patients. Included in the total are 19,195 attendances for prophylactic treatment.

Seven hundred and fifty-three seamen were registered during 1970, compared with 824 the previous year.

Venereal Diseases Act, 1918, as amended

(a) Notifications

Three thousand, seven hundred and seventy-three notifications of venereal disease were received during the year.

A further 178 cases were diagnosed in the division from various sources but for which notifications were not received. These have been added to the notifications, making a total of 3,951 known cases of venereal disease in the State of New South Wales during 1970.

Notification of venereal disease by private practitioners is very low. Only 18·4 per cent of all gonorrhoea notifications and 14·5 per cent of all syphilis notifications were made by them.

(b) Notification Rates

The crude notification rates per 100,000 mean population for gonorrhoea and syphilis for the metropolitan area, and the remainder of the State, for the past 3 years are shown below:

	1968	1969	1970
Gonorrhoea—			
Metropolitan Area .. .. .	172	133	126
Whole State .. .. .	113	90	77
Syphilis—			
Metropolitan Area .. .. .	17	15	16
Whole State .. .. .	12	10	10

The age and sex specific notification rates per 100,000 population:

				1968		1969		1970	
				M	F	M	F	M	F
Gonorrhoea:	15-19	..	..	413	149	305	150	..	..
	20-24	..	..	864	132	680	149	..	..
	25-29	..	..	570	59	383	59	..	..
Syphilis:	15-19	..	..	10	5	7	5	..	..
	20-24	..	..	39	19	27	11	..	..
	25-29	..	..	47	20	35	24	..	..

(c) *Notification of Default (Section 10)*

Eight hundred and fifty-two defaulters were notified from the Metropolitan Health District. Of these, 369 (43.3 per cent) remained in default.

(d) *Prosecutions (Section 5—Failure to continue treatment)*

Summonses were issued against 483 persons compared with 502 in 1969, all in the metropolitan area. Five males were arrested. One was fined 25 cents court costs and completed treatment after being placed on verbal recognizance. Remainder of cases were dismissed after a warning and promise to complete treatment.

Warrants for arrest were issued in two other cases, but these were subsequently withdrawn after some months as the patients had not been traced.

(e) *Contact Tracing*

All notifications of venereal disease (on Form B, Section 9, Regulation 7) include the name and address of the person from whom the infection was probably contracted.

In 1970, the 1st year in which the activities of the social workers attached to the clinic settled into a pattern, 1,089 patients were interviewed; 578 patients (53.1 per cent) gave information leading to the tracing of at least 645 contacts. These figures include 58 homosexual patients and 75 male contacts, respectively.

**Gonorrhoea**

Three thousand, four hundred and ninety-seven cases were recorded during 1970, a decrease of 12.9 per cent from the previous year. Three thousand, one hundred and twenty-one cases (89.2 per cent) were from the Metropolitan area. Only 18.4 per cent of notifications were from private practitioners. The sex ratio of cases was 4.1 males to 1 female.

Proportion of cases of gonorrhoea in males and females in the age group 15–19 for the past 3 years:

	1968			1969			1970		
	per cent			per cent			per cent		
Males	..	..	..	19.0	18.6	18.4	..	..	..
Females	..	..	..	38.7	37.3	35.3	..	..	..

**Syphilis**

Four hundred and forty-eight cases were recorded of which 209 (46.6 per cent) were in an early infectious stage. The total for the year was 5 less than for 1969, a decrease of 1.1 per cent.

Four hundred cases (89.3 per cent) were from the metropolitan area.

Only 14.5 per cent of notifications were from private practitioners.

The sex ratio of cases was 3.0 males to 1 female.

Proportion of cases of syphilis in males and females in the age group 15–19 for the past 3 years:

	1968			1969			1970		
	per cent			per cent			per cent		
Males	..	..	..	5.7	4.3	4.7	..	..	..
Females	..	..	..	7.3	6.1	7.2	..	..	..

*Notification rates.*—As population figures for the age groups required for 1970 are not yet available at the time this report is being written, the rates cannot be calculated.

The number of cases is as follows:

							1970	
							Male	Female
Gonorrhoea—								
15-19	..	..	..	..	..	..	516	243
20-24	..	..	..	..	..	..	1,158	285
25-29	..	..	..	..	..	..	574	75
Syphilis—								
15-19	..	..	..	..	..	..	16	8
20-24	..	..	..	..	..	..	74	24
25-29	..	..	..	..	..	..	64	19

TABLE 1  
(Figures for 1969 are shown in brackets)

Source of Report							Gonorrhoea				Syphilis			
							Male		Female		Male		Female	
Navy ..	..	..	..	..	..	..	33	(59)	..	(—)	1	(1)	..	(—)
Army ..	..	..	..	..	..	..	36	(156)	..	(—)	2	(1)	..	(—)
Air Force ..	..	..	..	..	..	..	3	(1)	..	(1)	1	(—)	..	(—)
Metropolitan H.D.—														
Private Practitioners ..	..	..	..	..	..	..	393	(439)	64	(87)	49	(29)	6	(7)
Hospitals ..	..	..	..	..	..	..	357	(486)	578	(622)	45	(41)	37	(63)
Divisional Clinic ..	..	..	..	..	..	..	1,630	(1,769)	..	(—)	109	(95)	..	(—)
Western Metropolitan H.D.—														
Private Practitioners ..	..	..	..	..	..	..	16	(9)	5	(3)	2	(—)	2	(—)
Hospitals ..	..	..	..	..	..	..	66	(12)	11	(4)	2	(—)	1	(—)
Newcastle H.D.—														
Private Practitioners ..	..	..	..	..	..	..	30	(23)	3	(3)	2	(2)	1	(4)
Hospitals ..	..	..	..	..	..	..	96	(111)	9	(8)	4	(7)	2	(4)
South Coast H.D.—														
Private Practitioners ..	..	..	..	..	..	..	25	(26)	6	(6)	..	(—)	..	(2)
Hospitals ..	..	..	..	..	..	..	24	(17)	1	(1)	1	(2)	..	(1)
North Coast H.D.—														
Private Practitioners ..	..	..	..	..	..	..	20	(27)	4	(5)	..	(—)	..	(2)
Hospitals ..	..	..	..	..	..	..	..	(—)	..	(—)	..	(3)	..	(—)
North Western H.D.—														
Private Practitioners ..	..	..	..	..	..	..	32	(55)	4	(10)	..	(—)	2	(5)
Hospitals ..	..	..	..	..	..	..	2	(—)	..	(—)	..	(—)	..	(—)
Western H.D.—														
Private Practitioners ..	..	..	..	..	..	..	14	(21)	..	(5)	1	(12)	..	(2)
Hospitals ..	..	..	..	..	..	..	..	(—)	..	(—)	..	(2)	..	(1)
Riverina H.D.—														
Private Practitioners ..	..	..	..	..	..	..	19	(25)	3	(8)	..	(3)	..	(—)
Hospitals ..	..	..	..	..	..	..	5	(2)	..	(1)	1	(—)	..	(—)
Broken Hill (City only)														
Private Practitioners ..	..	..	..	..	..	..	1	(1)	..	(—)	..	(—)	..	(—)
Hospitals ..	..	..	..	..	..	..	2	(—)	..	(—)	..	(—)	..	(—)
Remainder of State—														
Private Practitioners ..	..	..	..	..	..	..	3	(3)	..	(1)	..	(—)	..	(—)
Hospitals ..	..	..	..	..	..	..	1	(—)	..	(—)	..	(—)	..	(—)
Diagnosed in Division but not notified ..	..	..	..	..	..	..	1	(3)	..	(—)	117	(108)	60	(56)
Total ..	..	..	..	..	..	..	2,809	(3,245)	688	(765)	337	(306)	111	(147)

TABLE 2—CASES OF VENEREAL DISEASE NOTIFIED DURING 1970 BY DISEASE, AGE, AND SEX

	0-14		15-19		20-24		25-29		30-39		40-49		50-59		60-69		70 and over		Age not stated		Totals		Grand Total
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Gonorrhoea	7*	16**	516	243	1158	285	574	75	381	42	115	10	35	5	4	2	4	..	15	10	2,809	688	3497
Syphilis	2	3	16	8	74	24	64	19	80	24	50	9	13	6	14	3	8	6	16	9	337	111	448
Chancroid	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lympho-granuloma Venereum	..	..	..	..	3	1	..	1	..	..	..	..	1	..	..	..	..	..	..	..	4	2	6
Granuloma Inguinale	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Gonorrhoeal Ophthalmia	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	3
Totals	11	20	532	251	1235	310	639	95	461	66	165	19	49	11	18	5	12	6	31	19	3,153	802	3,955

\* In this total were 1 aged 12, 1 aged 13 and 5 aged 14

\*\* In this total were 1 aged 4, 1 aged 10, 1 aged 12, 4 aged 13, 9 aged 14

TABLE 3—SYPHILIS: AGE—SEX GROUPING BY STAGE OF DISEASE

	0-14		15-19		20-24		25-29		30-39		40-49		50-59		60-69		70 and over		Age not stated		Totals		Grand Total
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Primary	..	..	6	..	30	5	28	3	26	4	8	..	4	..	1	..	..	..	1	..	104	12	116
Secondary	..	..	6	3	19	5	9	1	25	3	9	2	3	1	1	..	3	..	3	1	77	16	93
Latent 1st Year	..	..	3	3	14	4	5	..	13	3	5	2	1	..	..	6	1	1	1	47	13	60	
Cardio Vascular	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	2	2	
C.N.S.	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	2	2	2	
All other latent	..	..	1	2	11	10	22	15	16	14	26	5	5	5	11	3	6	6	7	104	66	170	
Congenital under 1 year of age	2	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	3	5	
Congenital over 1 year of age	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
..	2	3	16	8	74	24	64	19	80	24	50	9	13	6	14	3	8	6	16	9	337	111	448

TUBERCULOSIS DIVISION

Director: K. W. H. HARRIS, E.D., M.B., B.S., D.P.H., F.A.C.M.A., F.C.C.P.

Location: 86–88 George Street North (Headquarters). Chest X-ray Centre, 697 George Street West (X-ray Clinic)

Function: No change in policy, nor function of the division has occurred in the 12 month period, although negotiations have been conducted between the Department of Health and the Anti-Tuberculosis Association with a view to rationalization of mass X-ray services and other functions of the latter Association which should commence to take effect during 1971

NOTIFICATION OF TUBERCULOSIS

Notifications of new cases of all forms of tuberculosis for 1970 (644) as compared with 1969 (670) showed a further decrease. There was an increase in reactivated cases for 1970 (86) as compared with 1969 (55). Most of the reactivated group came from patients from the pre-chemotherapeutic era, or if later, with a history of insufficient or inadequate treatment. The total for new active and reactivated cases was slightly more in 1970 (730) as compared with 1969 (725). From these new cases in 1970, there were (559) cases of pulmonary tuberculosis and (85) cases of non-pulmonary disease, as compared with (593) and (77) respectively, for 1969. Details by age, sex and type of tuberculosis and stage of disease are set out in Tables I and II.

Included in these figures are 25 cases of atypical infection, 15 males comprising 8 pulmonary and 7 non-pulmonary cases and 10 females composed of 3 pulmonary and 7 non-pulmonary cases.

The non-pulmonary notifications can be dissected as follows:

Non-Pulmonary Cases—1970

Adenitis (Cervical)	..	..	..	..	..	..	..	27
Bone	..	..	..	..	..	..	..	3
Facial abscess	..	..	..	..	..	..	..	1
Genito-urinary	..	..	..	..	..	..	..	5
Larynx	..	..	..	..	..	..	..	1
Joint	..	..	..	..	..	..	..	4
Mediastinal gland	..	..	..	..	..	..	..	1
Meningeal	..	..	..	..	..	..	..	5
Miliary	..	..	..	..	..	..	..	2
Pelvic	..	..	..	..	..	..	..	1
Pericarditis	..	..	..	..	..	..	..	1
Renal	..	..	..	..	..	..	..	24
Salphingitis	..	..	..	..	..	..	..	6
Spinal	..	..	..	..	..	..	..	5
Tongue (concomitant pulmonary tuberculosis)	:	..	..	..				1
								87
Less those with concomitant pulmonary disease	..	..	..					1
								86

TABLE I—NOTIFICATIONS OF TUBERCULOSIS FOR 1970 SHOWING SEX, AGE AND FORM

Age Group	Males			Females			Persons			Total	Percentage
	Pulmonary Tuberculosis	Non-Pulmonary Tuberculosis	Re-activated	Pulmonary Tuberculosis	Non-Pulmonary Tuberculosis	Re-activated	Pulmonary Tuberculosis	Non-Pulmonary Tuberculosis	Re-activated		
0-4	4	8	..	5	8	..	9	16	..	25	3.4
5-9	..	2	..	1	4	..	1	6	..	7	1.0
10-14	..	..	..	3	1	..	5	1	..	6	0.8
15-19	..	..	..	4	..	..	9	1	..	10	1.4
20-24	..	3	..	11	3	..	30	6	..	36	4.9
25-29	..	2	1	6	3	1	18	5	2	25	3.4
30-34	..	1	2	7	3	..	22	4	2	28	3.8
35-39	..	3	1	11	7	1	42	10	2	54	7.4
40-44	..	6	4	7	5	1	37	11	5	53	7.3
45-49	..	1	5	14	2	3	61	3	8	72	9.9
50-54	..	2	6	4	4	6	59	6	12	77	10.5
55-59	..	1	12	17	1	2	70	2	14	86	11.8
60-64	..	..	12	15	2	2	62	2	14	78	10.7
65-69	..	4	8	12	..	1	49	4	9	62	8.5
70-74	..	1	8	3	6	..	26	7	8	41	5.6
75—	..	2	10	18	..	..	58	2	10	70	9.6
Total	420	37	69	138	49	17	558	86	86	730	100.0
Percentage	57.5	5.1	9.5	18.9	6.7	2.3	76.4	11.8	11.8	..	100.00

TABLE II—COMPARISON OF FORM AND/OR STAGE OF DISEASE FOR 1970 AS COMPARED WITH PRECEDING YEARS

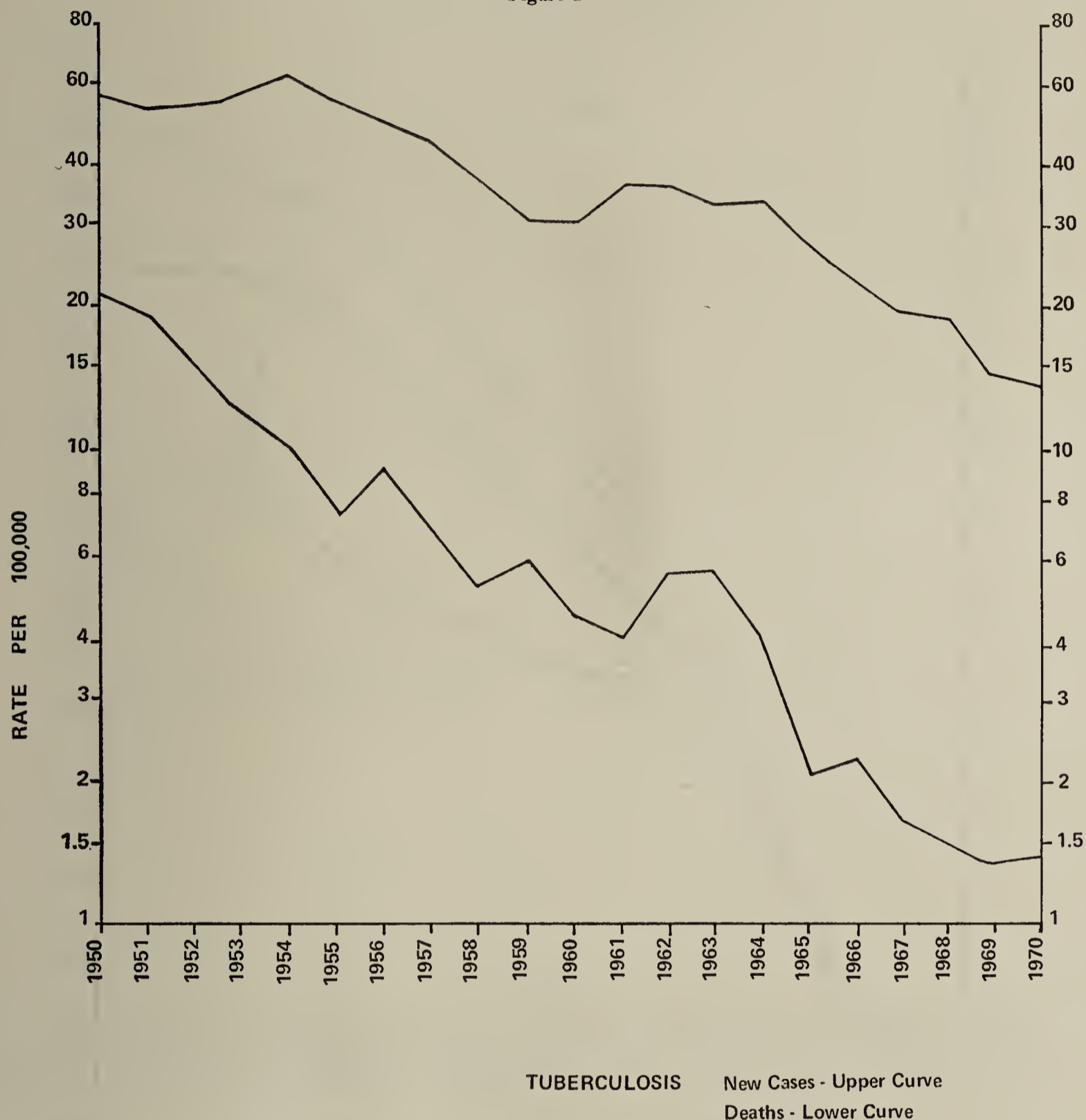
Form and/or stage of disease	1960		1961		1962		1963		1964		1965		1966		1967		1968		1969		1970	
	Cases	Per-centage of total noti-fi-cations	Cases	Per-centage of total noti-fi-cations	Cases	Per-centage of total noti-fi-cations	Cases	Per-centage of total noti-fi-cations	Cases	Per-centage of total noti-fi-cations	Cases	Per-centage of total noti-fi-cations	Cases	Per-centage of total noti-fi-cations	Cases	Per-centage of total noti-fi-cations	Cases	Per-centage of total noti-fi-cations	Cases	Per-centage of total noti-fi-cations	Cases	Per-centage of total noti-fi-cations
Primary .. .. .	..	..	10	0·6	10	0·6	17	1·2	10	0·7	17	1·5	21	2·1	19	2·3	24	2·7	17	2·31	16	2·2
Minimal .. .. .	496	32·35	493	33·9	552	37·8	380	27·7	346	24·7	274	24·4	169	17·5	178	19·0	191	20·7	114	15·68	146	20·0
Moderately Advanced .. .. .	675	44·04	622	42·8	526	36·0	491	35·7	527	37·6	568	50·5	520	53·9	468	50·0	437	47·4	356	49·08	292	40·0
Advanced .. .. .	156	10·17	132	9·1	117	8·0	99	7·2	157	11·2	77	6·9	96	10·0	85	9·0	74	8·0	82	11·01	81	11·1
Pleural Effusion .. .. .	11	0·72	29	2·0	36	2·5	28	2·0	51	3·6	18	1·6	20	2·1	28	2·9	21	2·3	24	3·29	23	3·1
Extra Pulmonary.. .. .	78	5·07	90	6·2	113	7·8	70	5·1	88	6·3	73	6·5	84	8·7	75	8·0	103	11·1	77	10·56	86	11·8
Death Certificate .. .. .	117	7·65	79	5·4	106	7·3	74	5·4	71	5·05	*	*	5	0·5	..	..	..	..	*	*	*	..
Reactivated .. .. .	..	..	..	..	..	..	142	10·3	113	8·05	97	8·6	50	5·2	83	8·8	72	7·8	55	7·55	86	11·8
Quiescent .. .. .	..	..	..	..	..	..	67	4·9	35	2·5	*	*	*	*	*	*	*	*	..	..	..	..
Atypical .. .. .	..	..	..	..	..	..	7	0·5	4	0·3	*	*	*	*	*	*	*	*	*	*	*	..
Not stated .. .. .	..	..	..	..	..	..	†	..	†	..	†	..	†	..	†	..	†	..	†	0·52	†	..
Total .. .. .	1,533	100·00	1,455	100·00	1,460	100·00	1,375	100·00	1,402	100·00	1,124	100·00	965	100·00	936	100·00	922	100·00	725	100·00	730	100·00

† This includes reactivated figure  
\* Included in other headings.

## INCIDENCE OF TUBERCULOSIS

The rate per 100,000 of the population as at 30th June, 1970, of new cases of tuberculosis was 14.1, and of pulmonary tuberculosis alone was 12.2. This can be compared with rates per 100,000 since 1950, shown in figure 1. The mortality rates for the same period, also shown, are discussed in a later section of this report. With regard to the total annual rate of notifications the key years in the Tuberculosis Campaign would be 55.96 in 1950—the date of the commencement of the New South Wales State Campaign against tuberculosis, 62.88 in 1954 (the highest rate and related to case finding activities) and 14.1 in 1970 (the lowest rate). This decrease is as expected and related to the planned control measures adopted throughout the campaign.

### Figure 1



### Mortality Rate

An increase from 1·27 to 1·40 per 100,000 has occurred during the year 1970. The table below gives a dissection of causes of death from tuberculosis by type and sex. As in previous years the majority of deaths was in the over 50 age group.

							Male	Female	Total
0109	Pneumoconiosis and tuberculosis	..	..	..	..	..	2	..	2
0119	Pulmonary tuberculosis	..	..	..	..	..	20	4	24
0130	Tuberculosis of Meninges and C.N.S.	..	..	..	..	..	1	..	1
0149	Tuberculosis of intestines, peritoneum, and mesenteric glands	..	..	..	..	..	..	1	1
0169	Tuberculosis of the genito-urinary system	..	..	..	..	..	1	..	1
0189	Disseminated tuberculosis	..	..	..	..	..	1	1	2
0190	Late effects of tuberculosis	..	..	..	..	..	25	8	33
							50	14	64

Male deaths increased from 35 to 50. Of the total of 64 (both sexes) 33 deaths were due to the late effects of tuberculosis (19 in 1969).

Figures 2 and 3 illustrate Age—Specific Notifications for Pulmonary Tuberculosis for the years 1970 and 1950 respectively.

Figure 2

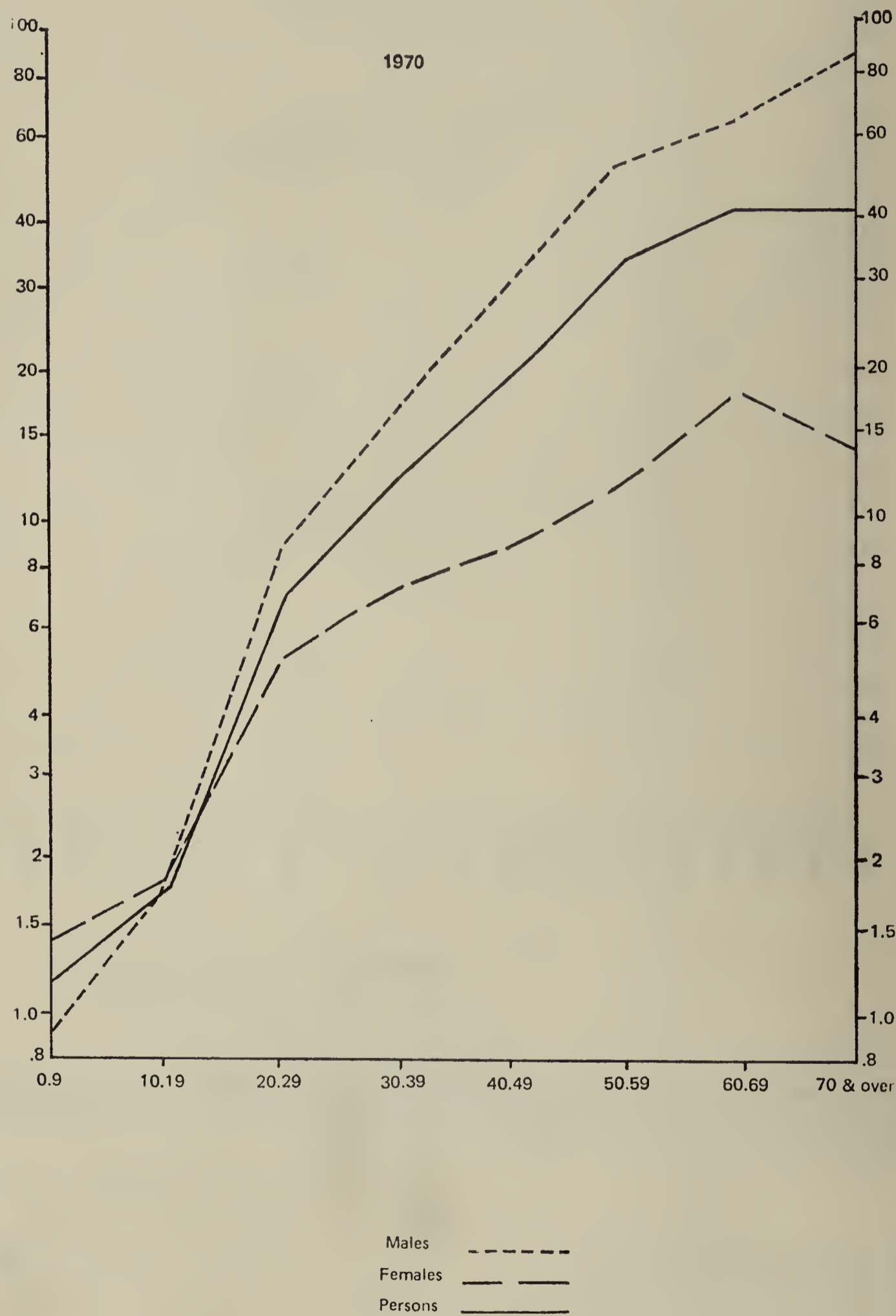
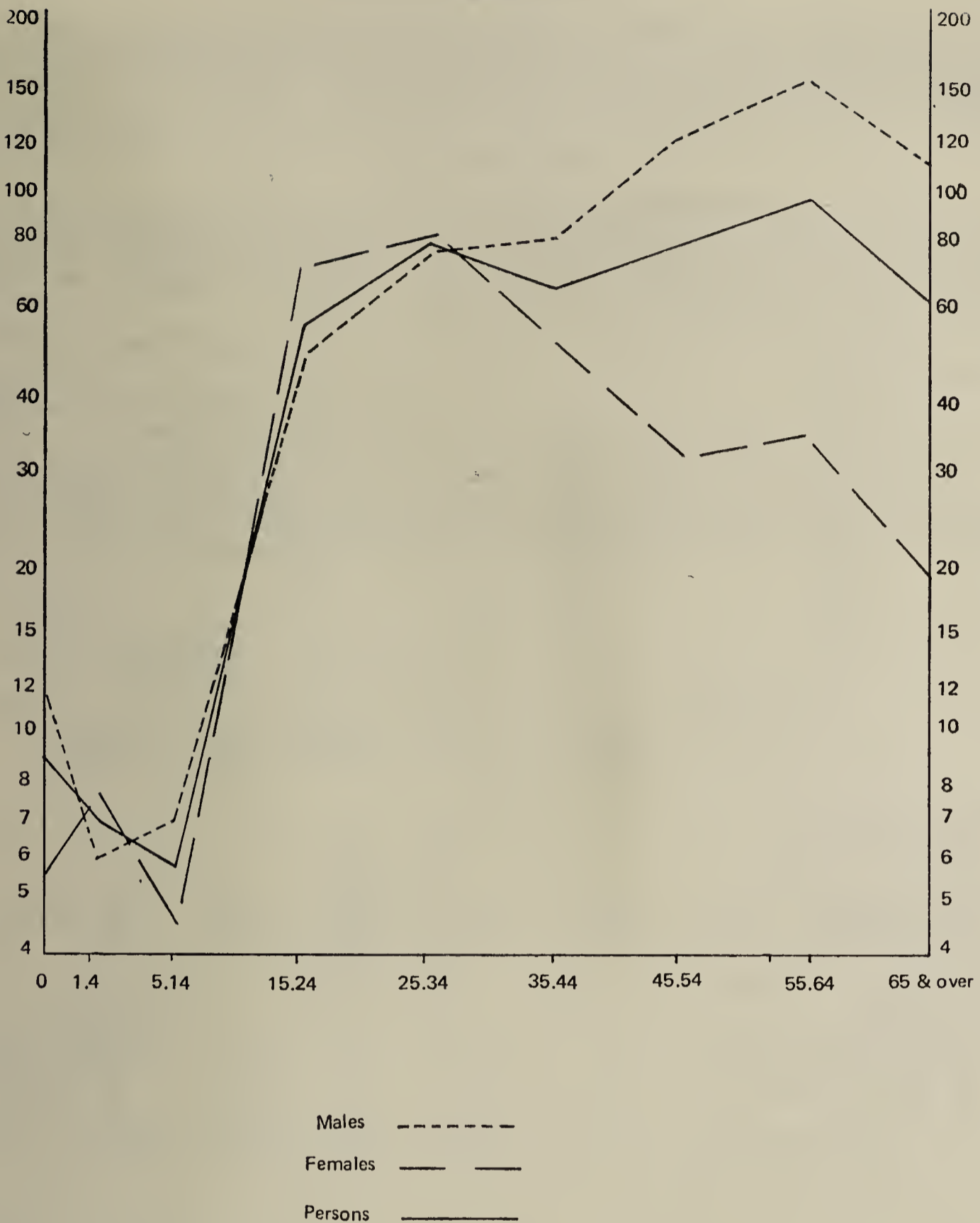


Figure 3



#### Age and Sex

No change in this pattern was noted, the incidence of new active cases of tuberculosis being higher in the age groups 45 and above—comprising approximately 55 per cent of the total notifications. The ratio of tuberculosis patients male to female decreased for females in 1970, being 1:0.36 as compared with 1:0.40 in 1969.

The sex ratios for tuberculosis, male/female, since 1958 inclusive, are as follows:

Year			Total Notifications (including reactivations)*	Total Males	Total Females	Ratio Male to Female
1958	..	..	1,399	959	440	1 : 0.46
1959	..	..	1,166	789	377	1 : 0.48
1960	..	..	1,533	1,068	465	1 : 0.45
1961	..	..	1,455	1,041	414	1 : 0.40
1962	..	..	1,460	1,040	420	1 : 0.40
1963	..	..	1,375*	963	412	1 : 0.43
1964	..	..	1,402*	951	451	1 : 0.47
1965	..	..	1,124*	821	303	1 : 0.36
1966	..	..	965*	673	292	1 : 0.43
1967	..	..	936*	681	255	1 : 0.37
1968	..	..	922*	660	262	1 : 0.40
1969	..	..	725*	514	211	1 : 0.40
1970	..	..	730*	537	193	1 : 0.36

Stage of Disease

When compared with 1969, the noted differences are an increase in percentage of the minimal cases 15.7 (1969) as compared with 20.0 per cent, (1970), reactivated cases 7.55 to 11.8 per cent and a decrease in moderately advanced cases 49.1 and 40.0 per cent and pleural effusion cases 3.3 and 3.1 per cent respectively.

Source of Discovery

Table III shows the breakdown of the various sources of discovery. For the first time the highest source ceased to be mass community surveys. With pulmonary notifications, cases from chest clinics provided 27.4 per cent as compared with 26.1 per cent from mass surveys. This is partly due to the effect of reactivated cases being included in the table. If reactivated cases are excluded; Mass surveys are still responsible for 30.1 per cent of new cases found.

An increase occurred in the private medical practitioner group from 19.3 per cent in 1969 to 22.7 per cent in 1970.

A decrease as source of notification was seen in mental hospital surveys, 2.3 per cent (1970), 4.6 per cent (1969); and general hospitals 10.0 per cent (1970), 14.3 per cent (1969).

In the non-pulmonary notifications an increase was to be seen in general hospitals 47.5 per cent (1970), 40.2 per cent (1969), chest clinics 2.3 per cent (1970), nil (1969) with a decrease in chest hospitals nil (1970), 3.9 per cent (1969) and private medical practitioners via chest clinic 8.1 per cent (1970), 14.3 per cent (1969). Otherwise there were no significant alterations in the source.

TABLE III

Source 1970	Pulmonary cases		Non-Pulmonary Cases		Total
	No.	per cent	No.	per cent	
Mass Community Surveys—					
Health Department .. .. .	79	12.3	1	1.2	80
A.T.A. .. .. .	89	13.8	..	..	89
Private Medical Practitioners—					
Direct .. .. .	46	7.1	28	32.6	74
Via Chest Clinic .. .. .	68	15.6	7	8.1	75
General hospitals .. .. .	95	10.0	41	47.5	136
Chest Hospitals, Annexes, and Sanatoria .. .. .	23	3.6	..	..	23
Chest Clinics .. .. .	177	27.4	2	2.3	179
Repatriation Clinics and Hospitals .. .. .	36	5.5	1	1.2	37
Death Certificates .. .. .	4	0.6	1	1.2	5
Special Groups—					
(a) Mental Hospital Surveys .. .. .	15	2.3	1	1.2	16
(b) Goal Surveys .. .. .	2	0.3	1	1.2	3
(c) Ante-Natal Hospitals .. .. .	1	0.1	1	1.2	2
(d) Other .. .. .	9	1.4	2	2.3	11
Total Notifications .. .. .	644	100.00	86	100.00	730

Migrants

The country of birth of all tuberculosis sufferers notified during 1970 was not available but the information was available for 582 persons and of these 35.8 per cent were migrants. This figure did not include reactivations or those persons notified by death certificate.

It is not possible to compare this with the previous year as due to deficiencies in the records the number of migrants was certainly greater than the figure of 20.7 quoted.

TUBERCULOSIS ALLOWANCE

The number of persons receiving the tuberculosis allowance as at 31st December, 1970, showed a decrease when compared with 1969, i.e., 168, a decrease from 212. Of these, in 1970, 148 were males and 20 females—74 receiving treatment in hospital and 94 home treatment. There has been a further reduction in patients who have been in receipt of the allowance for a lengthy period, mainly related to the lessened number of chronic positive cases.

Housing

During 1970 three cases were nominated by the Tuberculosis Housing Committee for “out of priority” housing to the Housing Commission of New South Wales. None of the above number were allocated housing—one case was rejected and two are still pending.

Six were still pending at the end of 1969, of which during 1970, two were allocated housing, and two cases were rejected, and two are still pending.

RADIOLOGICAL SURVEYS

Community mass miniature radiological surveys were carried out by the Tuberculosis Division and the Anti-Tuberculosis Association of New South Wales. The relevant statistics from each organization will be given later in the report. Statistics as a total for all facets of the radiography campaign are given in table IV. (These statistics include M.M.R. Surveys, special surveys including psychiatric hospitals and X-rays from fixed units at general hospitals and chest clinics). A detailed summary of results is given in table V.

TABLE IV—X-RAYS—EXCLUDING PSYCHIATRIC HOSPITALS

Age	Number	Active and probably active	Rate per 1,000	Inactive	Rate per 1,000	Other abnormalities	Rate per 1,000
Under 15	..	..	..	..	..	14	..
15-19 ..	..	..	..	4	..	64	..
20-24 ..	..	12	..	25	..	113	..
25-29 ..	..	12	..	24	..	109	..
30-34 ..	..	9	..	33	..	109	..
35-39 ..	..	16	..	39	..	110	..
40-44 ..	..	21	..	54	..	168	..
45-49 ..	..	29	..	60	..	208	..
50-54 ..	..	18	..	61	..	202	..
55-59 ..	..	26	..	73	..	314	..
60-64 ..	..	32	..	46	..	319	..
65-69 ..	..	12	..	53	..	307	..
70-74 ..	..	11	..	36	..	209	..
Not stated and over 75	..	15	..	57	..	219	..
Totals ..	701,376	213	0.30	565	0.81	2,465	3.52

In addition 20,275 films were taken on 70 mm units as part of chest clinic reviews.

TABLE V

Type of survey	Total X-rayed	Number active and probably active tuberculosis	Rate per 1,000	Inactive Cases	Rate per 1,000	Other significant conditions	Rate per 1,000
Tuberculosis Division—							
M.M.R. Metropolitan	123,852	26	0.21	72	0.58	185	1.49
M.M.R. Country ..	71,781	15	0.21	32	0.44	127	1.77
Chest X-ray Centre ..	37,036	21	0.57	85	2.30	110	2.97
Special Surveys ..	15,119	5	0.33	18	1.19	33	2.18
	247,788	67	0.27	207	0.84	455	1.84
A.T.A.—							
M.M.R. Metropolitan	142,600	15	0.11	25	0.17	451	3.16
M.M.R. Country ..	192,653	44	0.23	28	0.15	550	3.86
Clinic ..	17,150	34	1.98	46	2.68	400	23.3
Sydney Hospital ..	33,469	7	0.21	4	0.12	112	3.35
Special Surveys ..	22,457	4	0.18	6	0.27	65	2.89
	408,329	104	0.25	109	0.27	1,578	3.89
Routine Hospitals—							
Metropolitan ..	43,102	40	0.93	218	5.07	448	10.3
Country ..	2,157	2	0.92	31	14.3	37	17.2
	45,259	42	0.93	249	5.50	485	10.7

PSYCHIATRIC HOSPITAL SURVEYS

(from both mobile and 70 mm units installed in hospitals)

Mobile Unit .. .. 4,278 }  
Fixed 70 mm Units .. .. 8,857 } 13,135

Age	Number	Active and probably active	Rate per 1,000	Inactive	Rate per 1,000	Other abnormalities	Rate per 1,000
All ages ..	13,135	16	1.22	74	5.63	95	7.23

### Radiological Surveys—Division of Tuberculosis

Statistics for this divisional activity are shown in table VI. These activities are reported under separate headings:

- A. Mass Miniature Surveys.
- B. The Chest X-ray Centre.
- C. Special Surveys.

#### A. MASS MINIATURE SURVEYS

During the year 1970 the following areas were visited.

##### *Fourth Round Survey*

Municipality of Bombala

Shire of Bibbenluke

##### *Fifth Round Survey*

Municipalities of Queanbeyan

Shires of Yarrowlumla

Cooma

Monaro

Bega

Snowy River

Camden

Imlay

Bowral

Mumbulla

Mudgee

Eurobodalla

Mittagong

Cities of Bathurst

Wingecarribee

Lithgow

Blaxland

Rylstone

Cudjegong

Oberon

Lyndhurst

Turon

Abercrombie

Wollondilly

##### *Sixth Round Survey*

State Electorate Districts of Lane Cove

Willoughby

Kirribilli

Mosman

Manly

Collaroy

Wakehurst

The number of films taken was 195,633 which was considerably less than in previous years.

This was due to a reduction in the tempo of the surveys conducted by the Division of Tuberculosis and the Anti-Tuberculosis Association of New South Wales. This was so planned because of consideration of being given to the rationalization of mass X-ray services in New South Wales. Due to the future uncertainty normal X-ray unit staff resignations were not replaced so that a smaller number of X-ray units was maintained in operation.

Only a small section of country areas was surveyed and because of the inability of the division to implement compulsion in the normal number of surveys the attendances at metropolitan surveys were not satisfactory. This is discussed further in the section dealing with implementation of X-ray surveys.

The number of notified active cases of pulmonary tuberculosis found during these surveys was 22 and a further 16 cases at least will probably be notified when investigations have been completed. This represents a rate of 0.21 cases per 1,000 persons X-rayed. A total of 104 persons was found to have inactive tuberculosis after completion of investigations and a further 150 were considered to require routine annual X-rays and were referred to clinics. Of the total of 2,540 persons reported to have abnormalities other than tuberculosis, 312 were referred for appropriate investigation while the remainder were dealt with by advice to the person or a medical advisor if considered significant.

#### B. CHEST X-RAY CENTRE

A total of 37,036 persons attended for chest X-rays during the year which number was approximately the same as in 1969.

Twenty-one cases of active tuberculosis were found in this group representing 0.57 cases per 1,000 X-rays taken; also 85 cases of inactive tuberculosis were discovered. A total of 110 persons was referred appropriately for investigation, and 97 persons were referred to clinics for regular chest X-ray supervision.

TABLE VI—SUMMARY OF X-RAYS TAKEN BY TUBERCULOSIS DIVISION FOR THE YEAR ENDING 31ST DECEMBER, 1970

	Total Number of persons X-rayed	Number of persons rerayed on large films	Percentage Technical Faults	Percentage Cases of active Tuberculosis	Cases per 1000 micro films	Cases of Inactive Tuberculosis	Other Abnormalities	Cases under investigation	Number of persons referred to Clinic for regular follow up
Metropolitan	123,852	724	0.58	0.24	0.21	72	1,640	43	86
Country	71,781	433	0.60	0.38	0.21	32	900	31	64
Total M.M.R.	195,633	1,157	0.59	0.29	0.21	104	2,540	74	150
Chest X-ray Centre	37,036	335	0.90	0.55	0.57	85	467	21	97
Special Surveys	15,119	95	0.63	0.62	0.33	18	198	12	18
Psychiatric Hospitals	516	5	0.97	..	0.39	1	10	2	..
Gaols	766	6	0.78	..	..	..	10	..	..

A review of the 1969 figures showed that a further 4 cases were notified as having active tuberculosis, bringing the total number to 28, a case rate of 0.75 per 1,000 persons X-rayed.

### C. SPECIAL SURVEYS

A number of special surveys was carried out during the year. These included homes for the aged, convalescent homes, institutions for the destitute, factories from which cases had been notified, prisons and prison farms etc.

A total of 15,119 persons was X-rayed which produced 5 cases of active tuberculosis at rate of 0.33 per 1,000; 18 cases of inactive tuberculosis at rate of 1.19 per 1,000 and 33 persons who were referred for investigation for other abnormalities. One psychiatric hospital was visited and 516 persons were X-rayed from which 2 persons were found to have active tuberculosis and one inactive disease.

## Radiological Surveys—Anti-Tuberculosis Association of New South Wales

### A. MASS SURVEYS

Statistics of mass radiological surveys conducted by this organization are given in table VII.

TABLE VII—MASS RADIOLOGICAL SURVEYS—THE ANTI-TUBERCULOSIS ASSOCIATION OF NEW SOUTH WALES

Area	Total No. of X-rays	Active probably active tuberculosis	Rate per 1,000	Inactive tuberculosis	Rate per 1,000	Other conditions	Rate per 1,000
Metropolitan	142,600	15	0.11	25	0.17	451	3.16
Country	192,653	44	0.23	28	0.15	550	3.86

The country areas X-rayed by the Anti-Tuberculosis Association were in the North Western, the North Coast and the Newcastle Health Districts. The corresponding details will be mentioned in comments related to the respective health districts.

### B. SPECIAL SURVEYS

Special surveys carried out by the Anti-Tuberculosis Association did not show as high a yield as in previous years. From a total of 22,457 X-rays taken, 4 active cases were found—rate per 1,000 of 0.18; 6 inactive cases of tuberculosis—rate of 0.27 and 65 other significant conditions—rate of 2.89.

### C. ANTI-TUBERCULOSIS ASSOCIATION CLINIC

The pattern of previous years was repeated in that this unit provided a high source of notifications. From a total of 17,150 X-rays there was a yield of 34 active and 46 inactive tuberculosis cases, at rates of 1.98 and 2.68 per 1,000 respectively. There were 400 other significant conditions also discovered at rate of 23.3.

### D. SYDNEY HOSPITAL UNIT—ANTI-TUBERCULOSIS ASSOCIATION

There was a slight increase in the number of active cases found when compared with 1969. In 1970 a total of 33,469 people was X-rayed resulting in 7 active cases and 4 inactive cases of tuberculosis at rate per 1,000 of 0.21 and 0.12 respectively. In addition there were 112 people with other significant conditions at a rate of 3.35 per 1,000.

### General Hospital Routine X-ray Programme

A total 58,406 X-rays was taken in 1970 by miniature X-ray units installed in metropolitan hospitals, compared with 49,177 in 1969 and 51,268 in 1968; of these 15,304 films were taken as part of chest clinic reviews. The remaining 43,102 were routine hospital films and resulted in 40 cases of active tuberculosis and 218 inactive cases—at rates of 0.93 and 5.07 respectively, per 1,000 films. There were 448 other significant conditions requiring investigation.

Corresponding figures for 1969 were 50 active and 108 inactive cases of tuberculosis, and for 1968, 16 active and 286 inactive cases. This continued high yield adequately demonstrates the value of these units.

As far as the miniature X-ray units installed in country hospitals are concerned a total of 7,128 films were taken, of which 3,161 were clinic patients and 1,810 from another hospital without any reported abnormalities. From the remaining routine hospital films, 2,157, 2 cases of active tuberculosis and 31 inactive cases of tuberculosis were found at a rate of 0.92 and 14.3 per 1,000 respectively. In addition 37 other significant conditions were reported. Corresponding figures for 1969 were 1 active and 25 inactive cases of tuberculosis as well as 13 other significant conditions.

### **Psychiatric Hospital X-rays**

These were derived from two sources:

Miniature units installed in psychiatric hospitals.

Mobile surveys of psychiatric hospitals where units were not installed.

### **A. MINIATURE UNITS**

From these installed units 8,857 patients were X-rayed resulting in a total of 13 active and 72 inactive cases of tuberculosis, and 74 other significant conditions. The rates per 1,000 for these findings were 1.48, 8.18 and 8.35 respectively. These figures should be compared with 20 active and 109 inactive cases of tuberculosis and 221 other conditions for the year 1969.

### **B. MOBILE SURVEYS**

The mobile units took 4,278 X-rays which resulted in 3 active cases of tuberculosis, 2 inactive and 21 other conditions. Corresponding rates were 0.70, 0.47 and 4.71 respectively. No figures were available for comparison for 1969.

### **Non-Tuberculous Abnormalities**

A complete break up of abnormalities other than tuberculosis found in mass surveys both by the Tuberculosis Division and the Anti-Tuberculosis Association is not given, but the number of malignant neoplasms discovered continues at approximately the same rate of 2 cases per 10,000 films taken. Fifty-four persons were found to have evidence of pulmonary metastatic tumours, 7 cases of hydatid disease and 27 cases of sarcoidosis were also discovered.

### **Implementation of Compulsory Surveys**

It has not been possible to carry out the implementation of compulsory X-ray surveys during 1970 to the same extent as in earlier years.

This has been related to changing from a card orientated system using the services of a commercial bureau to the use of magnetic tape equipment at the Treasury A.D.P. Centre. Due to the slow delivery of punching equipment and problems in programming, less than half the usual electoral districts was adequately followed up. In those areas where full implementation of compulsion was carried out, there was complete attendance or acceptable reasons for exemption from all residents.

This illustrates the need for follow-up measures to be vigorously continued. An example of this need is illustrated in the survey conducted in the Manly-Warringah area. Here the attendance only just exceeded 50 per cent of the eligible population. The case rate for active tuberculosis was only 0.08 per 1,000 X-rays taken. No compulsory measures were undertaken in this district. This is in contrast with the nearby North Sydney-Mosman area where a partial follow-up was carried out. The resultant case rate for active tuberculosis was 0.60 per 1,000 X-rays in the areas followed up.

It was only necessary to proceed for prosecution of one person during the year, and this was from the Electorate of Northcott. This resulted in the accused being found guilty and fined \$100 and \$22 costs. All other persons who were followed up, attended for an X-ray without the need for prosecution although summonses were issued in a number of cases which were withdrawn when the people concerned attended for a chest X-ray prior to the date of hearing.

### **EPIDEMIOLOGICAL SURVEYS**

Tuberculin tests were continued in 1970 mainly in school children and National Service draftees. Mantoux negative results by age group (contrasted with 1969) are given in table VIII.

There was a decrease in the infection rate in the 20-24 age group from 11.9 in 1969 to 6.0 in 1970. This latter figure should be compared with the 1968 infection rate for this age group which was 7.2. The 20-24 age group consisted mainly of National Servicemen, average age 20.

TABLE VIII—EPIDEMIOLOGICAL TUBERCULIN TESTS  
*Type of Survey—School, Special, Divisional Headquarters and National Servicemen*

Age	Number tested	Positive				Negative		
		Not previously vaccinated with B.C.G.		Previously vaccinated with B.C.G.		1970		1969
		No.	Percentage*	No.	Percentage†	No.	Percentage*	Percentage*
0-4	71	2	2.9	1	1.4	68	97.1	98.1
5-9	507	6	1.2	4	0.8	497	98.8	97.9
10-14	44,892	765	1.7	755	1.7	43,372	98.3	98.1
15-19	36,916	906	2.5	738	2.0	35,272	97.5	96.7
20-24	1,629	88	6.0	153	9.4	1,388	94.0	88.1
25-29	134	36	31.0	18	13.4	80	69.0	66.9
30-34	66	20	37.0	12	18.2	34	63.0	50.0
35-39	44	14	35.9	5	11.4	25	64.1	49.0
40-44	49	19	41.3	3	6.0	27	58.7	48.5
45-49	18	5	31.25	2	11.1	11	68.75	42.9
50 and over	15	8	53.3	..	..	7	46.7	34.8
Totals ..	84,341	1,869	2.26	1,691	2.0	80,781	97.74	97.27

\* This is a percentage of the number of persons tested less the number of those persons who were previously vaccinated with B.C.G.  
† This percentage relates to the number tested.

It is not intended to proceed further with routine testing of the 1st year school group. In 1971 a final assessment of the 3rd and 5th year school groups will be carried out. This will then be limited to selected areas only, with thought given to B.C.G. vaccination of the school leavers in the northern part of the State where a high incidence of atypical results are expected.

### TUBERCULOSIS NURSES SECTION

During the year 1970 the total number of home visits made to patients in the metropolitan area showed a decrease from 16,888 to 13,893. However more time was spent in country relieving duties, with the large film unit and on epidemiological work.

Arising from discussions at the National Tuberculosis Advisory Council the divisional sisters took part in a follow-up of patients notified with infectious hepatitis in 1969 and 1970 to ascertain whether or not there was any relationship between tuberculin testing and B.C.G. vaccination and the development of the aforementioned disease. The results of this survey will not be known until 1971.

### Nurse Education

During 1970 a refresher course for tuberculosis nurses was conducted at the Nurses Home, North Ryde Psychiatric Centre. Nurses from all disciplines attended either one or the other of the two fortnightly courses held. The subjects covered are as listed below. Lectures were supplemented by field visits, films and group discussions.

### TUBERCULOSIS CONTROL—LECTURES AND LECTURE DEMONSTRATIONS

- The Commonwealth/State Tuberculosis Campaign and its Implications.
- The Organization and Administration of the Tuberculosis Control Programme in N.S.W.
- The Organization and Function of the Tuberculosis Division.
- Tuberculin Testing as carried out in Australia and its Role in Prevention.
- The Planning of a Tuberculin Survey, related procedures and results.
- Case-finding community Mass Chest X-ray Surveys.
- Case-finding—Special Groups.
- Organization of a Chest Clinic.
- Problems relating to Country Areas.
- Problems relating to City Areas.
- The Role of the Medical Officer and the Sister on the large Film Unit.
- The Role of the Domiciliary Nurse.
- Problems of a Social Worker.
- The Tuberculosis Nurse as an Educator.
- Statistics and Form Filling.
- Methods of Investigation including the SO<sub>2</sub> Medihaler Method.
- Bacteriological Methods in Tuberculosis.
- Tuberculosis in Children.
- Tuberculosis and the Psychiatric Patient.
- The Changing Pattern of Tuberculosis and Rehabilitation.

B.C.G. Vaccination.  
 Anonymous Mycobacteria, their recognition, effect, and treatment.  
 Contacts and their procedures.  
 The Public Health Act and Tuberculosis.  
 The Tuberculosis Allowance and Reviews.  
 Reactivation of the Inactive Case.  
 Modern Treatment of Tuberculosis.  
 The Role of the Voluntary Bodies in the Tuberculosis Campaign.  
 The Chemoprophylactic Programme.  
 Problem Groups in the Community.

### HOSPITAL BEDS

Hospital beds throughout the State allocated for tuberculosis are shown in table IX.

During 1970 further beds were closed at Canterbury District Memorial Hospital, 13; 55 beds at North Ryde Psychiatric Hospital, and 20 beds at Rankin Park Hospital. Steps have already been taken to reduce the beds at Royal Prince Alfred Hospital, St Vincent's Hospital, and the Royal North Shore Hospital to 25 each. A further decrease is noted in the average number of occupied beds during 1970 to 307.5 from 385.9 in 1969.

### BACTERIOLOGICALLY POSITIVE CASES

There was once more, a slight increase in the total number of persons who became positive during 1970, 511 as compared with 503 in 1969. During 1970, 24 cases were isolated with atypical organisms compared with 14 cases which met the criteria for notification in 1969. This increase suggests the need for investigation of these cases and possible tie up with the research work being carried out in Queensland.

No bacteriologically positive *Bovine* cases occurred during the year.

A further marked reduction occurred in cases who were bacteriologically positive for 12 months or longer. The total is now thirteen for 1970, compared with thirty in 1969. As previously, this was due to cure being achieved, or to decrease, the latter mainly from causes other than tuberculosis. The number of atypical Chronic Positives increased to eight in 1970 from five in 1969.

TABLE IX—BEDS AVAILABLE  
 Year ended 31st December, 1970

Institution	Number of TB beds available at 31st December (after the deduction of beds released conditionally or unconditionally)	Number released for use of non-TB patients	Average number of daily occupied beds during year by TB patients	Remarks
Randwick Chest Hospital .. ..	143	..	110.7	* Available beds to be further reduced to 25 in 1971.
Royal Prince Alfred Hospital ..	37	63*	9.5	
Royal North Shore Hospital ..	75	25*	13.5	
St Vincents Hospital .. ..	42	58*	12.0	
Parramatta Hospital .. ..	16	4	7.5	20 beds released during 1970.
Rankin Park Hospital .. ..	54	60	34.4	
Wollongong Hospital .. ..	20	..	8.7	
Tamworth Base Hospital .. ..	21	..	7.3	
Grafton Base Hospital .. ..	10	..	1.2	* No beds used now for TB patients.
Lismore Base Hospital .. ..	10	..	4.7	
Dubbo Base Hospital .. ..	10	..	4.2	
Wagga Wagga Base Hospital ..	10	..	4.5	
Albury Base Hospital .. ..	8	15	1.7	
Broken Hill and District Hospital	18	..	3.7	
Goulburn Base Hospital .. ..	..	10	..	
Manly Hospital .. ..	..	15	..	
St George Hospital .. ..	..	15	..	
Lidcombe Hospital (Lock up Ward)	10	62	2.5	
Canterbury Hospital .. ..	..	25*	8.4	
North Ryde Psychiatric Centre Tuberculosis Wards .. ..	77	55†	69.0	
Investigation Ward .. ..	..	12	..	
Picton Lakes Village .. ..	9	..	4.0	
Totals .. ..	570	419	307.5	† Within 12 months will be reduced to 62 beds.

Noted in the related table of drug-resistance is a further slight increase for untreated cases, and a slight decrease for treated cases. Both are still only a small percentage of the total tested.

Details are set out in tables X, XI, XII, XIII, XIV, and XV.

TUBERCULOSIS IN THE HEALTH DISTRICTS

Visits were made by the Director of Tuberculosis for New South Wales during the year to all health districts. Comments with reference to each district are to be found in the following paragraphs.

Metropolitan and Western Metropolitan Health Districts

The incidence of tuberculosis has shown a further decrease. The highest incidence areas per 1,000 of population in the metropolitan area were found in the city of Sydney, 0.85 per 1,000 population.

All other areas were below 0.36 per 1,000 in incidence. The lowest incidence areas were Burwood 0.09, Ku-ring-gai 0.08, Marrickville 0.03, Sutherland 0.07, Holroyd 0.04, and Penrith 0.09.

A total of 386 new cases were discovered in the metropolitan area, 286 males and 100 females, giving an overall incidence of 0.19 per 1,000 as in 1969. In the western metropolitan area 93 new cases were discovered, 64 males and 29 females, showing an incidence of 0.12 per 1,000; as compared with 0.14 per 1,000 in 1969.

Due to lack of correspondence between local government and State electoral boundaries it was not possible to clearly dissect the mass survey results between the Metropolitan and Western Metropolitan Health Districts.

Miniature mass radiography surveys were carried out by both the Tuberculosis Division and the Anti-Tuberculosis Association. From both sources a total of 266,452 people were X-rayed. From this, 41 cases were found to be active, and 43 are still under investigation. Excluding the latter group the rate per 1,000 proven was 0.15. In addition, 97 cases of inactive tuberculosis were discovered, as well as 636 other significant conditions.

In 1970 there was a further drop noted as shown by epidemiological tuberculin tests in the 10-14 group, average age 12; the infection rate was 1.65 in 1970 as compared with 1.9 in 1969. In the 15-19 age group the infection rate also decreased to 2.08 in 1970 from 3.3 in 1969.

The attendances at metropolitan chest clinics decreased from 139,546 in 1969 to 138,071 in 1970, which is still higher than the 1968 attendance records of 129,797. This drop is related to new contact procedures being introduced and should show its full effect in 1971 figures.

The new chest clinic was completed in the Hornsby and District Hospital and occupied in the early part of the year. However, the Liverpool District Hospital Chest Clinic is only just nearing completion and should be occupied in the first half of 1971.

Tuberculosis beds were released for other purposes, at Canterbury District Memorial Hospital 13, and North Ryde Psychiatric Hospital, 55. Steps have been taken to reduce the number of tuberculosis beds at the Royal Prince Alfred Hospital, Royal North Shore Hospital, and St Vincent's Hospital during 1971.

TABLE X—BACTERIOLOGICALLY POSITIVE CASES OCCURRING DURING YEAR  
*Excluding Atypical Disease—Year ended 31st December, 1970*

Number of persons who became positive during year* excluding atypical disease						
Age group	Total number of persons who became positive during year	Number of persons hospitalized during year	Number of persons NOT hospitalized during year	Persons positive at end of year†		
				In hospital	NOT in hospital	Total
0-4 .. ..	2	2	..	..	..	..
5-9 .. ..	2	2	..	..	..	..
10-14 .. ..	1	1	..	..	..	..
15-19 .. ..	4	4	..	..	..	..
20-24 .. ..	21	21	..	5	1	6
25-29 .. ..	14	14	..	2	..	2
30-34 .. ..	15	14	1	1	..	1
35-39 .. ..	37	34	3	6	1	7
40-44 .. ..	38	37	1	5	..	5
45-49 .. ..	60	57	3	10	..	10
50-54 .. ..	63	60	3	10	4	14
55-59 .. ..	58	56	2	8	1	9
60-64 .. ..	73	68	5	9	..	9
65-69 .. ..	39	33	6	8	2	10
70-74 .. ..	29	28	1	4	..	4
75 and over .. ..	55	53	2	3	2	5
N/S .. ..	..	..	..	..	..	..
Total .. ..	511	484	27	71	11	82

\* Includes notifications, reactivated cases and relapsed cases.  
† A positive case is regarded as one that has not firmly converted to negative on culture.

TABLE XI—BACTERIOLOGICALLY POSITIVE ATYPICAL CASES OCCURRING DURING YEAR ENDED 31ST DECEMBER, 1970

Number of persons suffering from atypical disease who became positive during the year*						
Age group	Total Number of persons who became positive during year	Number of persons hospitalized during year	Number of persons NOT hospitalized during year	Persons positive at end of year†		
				In hospital	NOT in hospital	Total
0-4 .. .. .	6	6	..	..	..	..
5-9 .. .. .	3	3	..	..	..	..
10-14 .. .. .	..	..	..	..	..	..
15-19 .. .. .	..	..	..	..	..	..
20-24 .. .. .	..	..	..	..	..	..
25-29 .. .. .	..	..	..	..	..	..
30-34 .. .. .	1	1	..	..	..	..
35-39 .. .. .	1	1	..	..	..	..
40-44 .. .. .	2	2	..	..	..	..
45-49 .. .. .	..	..	..	..	..	..
50-54 .. .. .	1	..	1	..	..	..
55-59 .. .. .	1	1	..	..	..	..
60-64 .. .. .	4	4	..	1	..	1
65-69 .. .. .	3	3	..	..	1	1
70-74 .. .. .	..	..	..	..	..	..
75 and over .. .. .	2	1	1	1	1	2
N/S .. .. .	..	..	..	..	..	..
Total .. .. .	24	22	2	2	2	4

\* Includes notifications, reactivated cases and relapsed cases.

† A positive case is regarded as one that has not firmly converted to negative on culture.

TABLE XII—CASES BACTERIOLOGICALLY POSITIVE\* FOR TWELVE MONTHS OR LONGER  
*Excluding Atypical Disease—Year ended 31st December, 1970*

Number of persons positive\* before the beginning of year and still positive\* at end of year, excluding atypical disease shown on form T.B.S. 11B

Age group	Number in hospital at end of year	Number <i>not</i> in hospital at end of year	Total number positive at end of year
50-54 .. .. .	3	2	5
55-59 .. .. .	..	1	1
60-64 .. .. .	1	..	1
65-69 .. .. .	..	..	0
70-74 .. .. .	4	1	5
75 and over .. .. .	1	..	1
N/S .. .. .	..	..	0
Total .. .. .	9	4	13

\* A positive case is regarded as one that has not firmly converted to negative on culture

TABLE XIII—ATYPICAL CASES BACTERIOLOGICALLY POSITIVE\* FOR TWELVE MONTHS OR LONGER  
*Year ended 31st December, 1970*

Number of *atypical* cases positive\* before the beginning of year, still positive\* at end of year

Age group	Number in hospital at end of year	Number <i>not</i> in hospital at end of year	Total number positive at end of year
45-49 .. .. .	..	1	1
50-54 .. .. .	..	3	3
55-59 .. .. .	..	..	0
60-64 .. .. .	1	..	1
65-69 .. .. .	..	..	0
70-74 .. .. .	1	1	2
75 and over .. .. .	..	1	1
N/S .. .. .	..	..	..
Total .. .. .	2	6	8

\* A positive case is regarded as one that has not firmly converted to negative on culture

TABLE XIV—DRUG RESISTANCE  
Year ended 31st December, 1970

Strepto- mycin	PAS	INH	Strepto- mycin and PAS only*	Strepto- mycin and INH only*	PAS and INH only*	All 3 primary drugs*	Ethion- amide	Pyrazin- amide	Cyclo- serine	Vio- mycin	Etham- butol	Other drugs—please list		
												Capreo- mycin	Rifam- picin	Isoxyl
Untreated Cases (No Previous Chemotherapy)														
8	8	12	1	1	3	1	..	..	..	..	..	2	1	1
Previously Treated Cases														
10	11	29	0	6	7	2	1	..	..	..	1	1	1	..

\* Patients listed as resistant to more than one primary drug should be listed under the appropriate individual drugs as well.  
NOTE: (1) Atypical mycobacterial strains are *not* to be included in this return.  
(2) Previously treated cases include those becoming resistant during treatment.

TABLE XV—BACTERIOLOGY SENSITIVITY TESTING  
Year ended 31st December, 1970

Patients (with typical organisms) on whose cultures sensitivity tests were performed.

New cases (not including reactivated cases) ..	..	..	..	..	..	..	..	..	..	..	..	349
Reactivated cases ..	..	..	..	..	..	..	..	..	..	..	..	41
Chronic cases ..	..	..	..	..	..	..	..	..	..	..	..	13
Carry over cases ..	..	..	..	..	..	..	..	..	..	..	..	72
Total number of cases ..	..	..	..	..	..	..	..	..	..	..	..	475

NOTE—

- (1) A patient who had several sensitivity tests in the year is included only once.
- (2) A chronic case is one that was positive before the beginning of year and still positive at end of year.
- (3) A carry over case is one that was positive before the beginning of year but became negative during year. Included in this category are previously chronic cases who became negative during year.
- (4) Patients with atypical organisms are NOT included in this return.

### Newcastle Health District

The incidence of tuberculosis in the above health district has shown a further slight decrease from 0.14 per 1,000 in 1969 to 0.13 per 1,000 of total population in 1970. Again the highest incidence area of significance was the city of Newcastle and in Manning showing 0.20 per 1,000. Beyond 9 centres including the latter where the incidence ranged from 0.14 to 0.20 the remainder of the health district, total population 106,400 had no reported cases of tuberculosis.

A total of seventy-three cases was notified throughout the health district, fifty-three males and twenty females, as compared with seventy-four cases in 1969. Again, no tuberculin epidemiological surveys of school children were carried out during 1970.

The Anti-Tuberculosis Association carried out mass X-ray surveys in part of the Newcastle Health District, a total of 51,577 people were X-rayed, resulting in 9 active and 5 inactive cases of tuberculosis being found together with 160 other significant conditions.

Clinical attendances, generally, decreased from 15,376 in 1969 to 14,683 in 1970—partly related to the adoption of new contact procedures. This full effect may not be felt until 1971; however this will be partly countered by the more adequate follow up of inactive cases not being dealt with at present. This latter problem should be overcome when the 100 mm X-ray unit commences to function. Home visiting also decreased from 3,550 in 1969 to 3,047 in 1970—again, shared between all clinics.

The new out-patients clinic at the Royal Newcastle Hospital commenced to function during 1970. A further twenty beds were closed for tuberculosis and made available for other purposes at the Rankin Park Hospital; the number of beds now available at this hospital were fifty-four.

### North Coast Health District

A total of 31 cases, 20 males and 11 females were notified during the year from all sources. Mass surveys were held throughout most of the health district and were responsible for finding 21 of the above cases from a total of 79,258 people X-rayed. In addition, 16 cases of inactive tuberculosis and 310 cases of other significant abnormalities were also reported.

The total incidence per 1,000 for the health district was 0.20 for 1970, as compared with 0.10 in 1969. This was undoubtedly related to the Miniature Mass Radiography Campaign.

All the higher incidence areas were X-rayed—those 0·50 and above were Nymboida 0·79 (one case); Woodburn 0·50 (two cases), Mullumbimby 0·50 (one case), and Terania 0·80 (four cases). The lowest incidence area, the only one below 0·11 was Tweed with a figure of 0·04 (one case), this area was also surveyed.

No epidemiological surveys were carried out during the year.

Increased chest clinic attendances, which rose from 4,593 in 1969 to 5,871 in 1970, and home visiting which showed an increase from 285 and 299 for corresponding periods were undoubtedly related to the mass miniature radiological survey.

#### North Western Health District

For the year 1970, 24 new and active cases of tuberculosis were notified from this area, of which 20 were males and 4 were females—at a rate of 0·14 per 1,000 in the population. The increase to 0·14 per 1,000 in 1970 from 0·09 in 1969 was undoubtedly related to mass surveys. The highest incidence areas were Macintyre 1·09 (3 cases) and Bingara 0·66 (2 cases). The lowest incidence area was Armidale 0·05 (1 case).

From the total health district population of 162,320, there were areas with population totalling 58,460 without any cases of tuberculosis reported.

The Anti-Tuberculosis Association was responsible for taking 61,518 X-rays in this Health District as part of the M.M.R. programme. From this 13 active and 7 inactive cases of tuberculosis were found, together with 310 other significant abnormalities.

Epidemiological tuberculin tests showed a marked tuberculin positive rate when compared with other parts of the State, these former rates were 16·5 per cent for the age group 10–14 average age, 13 and 21·7 per cent for the age group 15–19, average age 15. An examination of methods used correlated with results would suggest that this could be mainly due to the atypical organism. Therefore it is proposed that the whole of the tuberculous epidemiological situation in this health district should be examined with relation to human, bovine, and atypical infection rate, the possibility of B.C.G. vaccination and a renewed assessment re the groups who should be considered for B.C.G. vaccination.

Overall clinic attendances dropped from 3,514 in 1969 to 2,785 in 1970—undoubtedly this must be related to the adoption of new contact procedures, whereas the increase in home visits from 104 to 228 over the same period was probably related to the effect of mass surveys.

The chest clinic facilities at Tamworth were improved by transferring the out-patient clinic from the in-patient ward, to a portion of the adjacent tuberculosis nurses home. This has resulted in increased efficiency of operation.

#### Western Health District

A total of 33 cases, 25 males and 8 females, was notified from areas of population of 135,480. the remainder of the health district, 123,040, reported no cases being found. The highest incidence areas were Brewarrina 1·33 (4 cases). The lowest incidence areas were Bathurst 0·05 (1 case), and Dubbo 0·05 (1 case).

Mass miniature X-ray surveys were carried out by the Tuberculosis Division. A total of 31,054 X-rays were taken, giving rise to 7 active and 6 inactive cases of tuberculosis as well as 394 other conditions of importance.

The epidemiological surveys carried out showed a conversion rate of 1·6 per cent for the 10–14 age group and 0·9 per cent for the 15–19 age group—the reason for this reversal of age groups positively is not known, however as only a total of 1,223 children were tested, the numbers tested may not be regarded as adequate to give reliable results.

Chest clinic attendances dropped from 5,882 in 1969 to 4,761 in 1970—this was partly due to the introduction of new contact procedures and the temporary lack of staff due to illness, resignation, and special leave. Home visits also dropped from 1,039 in 1969 to 650 in 1970.

During 1970 a new Chest Clinic was commenced at Katoomba, with a number of patients transferring from Bodington. This should provide a more adequate service to the patients as the majority in this area come from Katoomba.

#### South Coast Health District

From all sources during 1970 a total of 49 cases of active tuberculosis was notified, 27 males and 22 males, which represented an incidence of 0·14 per 1,000 as compared with 0·18 per 1,000 in 1969. The highest incidence area was Imlay, 0·50 (3 cases) with Mumbulla, Bega, and Snowy River (each 1 case) each rate of 0·25; M.M.R. surveys were conducted in each of these areas. The lowest incidence was to be found in Shellharbour—0·06 (2 cases).

Mass miniature X-ray surveys were carried out by the Tuberculosis Division, where the X-raying of 50,727 people resulted in 8 active and 26 cases of inactive disease being found, in addition, 506 other significant abnormalities were discovered.

Tuberculin epidemiological surveys on school children showed a conversion rate of 2·08 for the age group 10–14 and 2·96 for the age group 15–19—average age 13 and 15 respectively. There were no surveys in 1969 with which to compare these results.

Clinic attendances for this district increased slightly from 18,877 in 1969 to 18,896 in 1970. Home visits increased from 1,890 to 2,059 for the corresponding periods. Although there would have been some decrease in attendances due to the commencement of new contact procedures, the mass survey follow up would account for the slight increase.

A new chest clinic was commenced in Queanbeyan in the latter part of 1970, it was fortunate that the services of Dr Proust and Sister Brush from the Tuberculosis Division of the Australian Capital Territory Health Services were made available by the Commonwealth Director for the running of this clinic.

#### **Riverina Health District**

During 1970, 20 active cases of tuberculosis were notified from this health district from areas with a population totalling 115,870, whereas from the remainder of the total population, the health district total being 260,180, no cases were notified. The rate from the total health district was 0·08 as compared with 0·12 in 1969. The highest incidence areas were Grenfell, 0·50 (1 case), Lachlan 0·66 (4 cases) and Wakool 0·50 (3 cases).

No mass surveys nor epidemiological surveys were reported.

Clinic attendances for the year were approximately the same, 4,548 in 1970 as compared with 4,540 in 1969, whereas home visits dropped from 398 in 1969 to 258 in 1970.

#### **Broken Hill Health District**

Twelve cases of tuberculosis were notified from this area in 1970, eleven males and one female—a rate of 0·38 as compared with 0·19 in 1969. No explanation can be given for this increase except that the mining industry did not play any significant part.

No miniature X-ray surveys, no epidemiological tuberculin tests were carried out during the year.

Chest clinic attendances rose from 699 to 797 and home visits from 50 to 86 for year 1969 and 1970 respectively, which were doubtless related to the increased notification rate.

### **TUBERCULOSIS IN THE MINING INDUSTRY**

For the first time since the commencement of the campaign there were no notifications of active tuberculosis from employees in coal mining and metalliferous mining.

### **TWENTY-FIRST NATIONAL TUBERCULOSIS ADVISORY COUNCIL**

At the meeting of this Council during 1970, a number of resolutions were passed. These were referred for ministerial consideration in this State. The following are being studied for their action and implementation in New South Wales.

- (i) *Council having considered the problem of multiple dose injections in tuberculin testing and B.C.G. vaccination, recommends that the States continue with their present techniques and that the matters be further reviewed at the next session of council.*
- (ii) *Council considers that routine tuberculin testing in school children purely as a case-finding measure amongst adult relatives and other close contacts is not indicated while community-wide compulsory chest X-ray surveys continue, but recommends that epidemiological tuberculin testing surveys and testing as a preliminary to B.C.G. vaccination (where indicated) be continued.*

- (iii) *After reviewing the 9th Council's recommendations with regard to contacts, council recommends the following as a reasonable programme for the examination of contacts of those with tuberculosis.*

A. *Contacts of (active newly notified) cases of tuberculosis*

1. *Children and adolescents (under 21 years)*

- (a) Tuberculin test at time of diagnosis of "source case".
- (b) If tuberculin negative, repeat tuberculin test in 2 months and give B.C.G. if still skin test negative. Chest X-ray may be indicated at discretion of physician.
- (c) If the original skin test is significantly positive, advise chest X-ray, then and appropriate chest clinic management.
- (d) If the repeat skin test is positive or chest film abnormal, advise appropriate clinic management.
- (e) In (b) above, where B.C.G. has been refused, repeat the tuberculin test and/or chest X-ray where applicable.

2. *Adults (over 21 years)*

- (a) Chest X-ray at time of diagnosis of "source case".
- (b) If chest X-ray normal, advise repeat in 3 months and if still normal advise one further film in 12 months, and if still normal, no further follow-up.
- (c) Tuberculin skin test and B.C.G. can be considered depending on age and closeness of contact.
- (d) Individuals with abnormal X-ray (or regarded as having significant positive skin tests) should have appropriate clinic management.

NOTE: If "reactivation" of source case occurs, re-examination of the contacts should be undertaken at that stage.

- (iv) *Council recommends that all tuberculin negative nursing staff and other staff in contact with patients should be protected with B.C.G. on commencing employment. This procedure is recommended in all hospitals and not only those treating tuberculosis.*

- (v) *Council recommends that the criteria for notification of cases of disease due to atypical mycobacteria should be as follows:*

(a) *In pulmonary disease*

- (1) The specific atypical mycobacterium should be isolated on three separate occasions and mycobacterium hominis should not be found.
- (2) There should be changes in the X-ray consistent with pulmonary tuberculosis.
- (3) The radiological changes should be progressive or show definite cavitation in a single film.

(NOTE: Rarely a case of atypical pulmonary disease might be diagnosed on a surgically resected specimen where only one isolation of bacteria would be possible.)

(b) *In non-pulmonary disease*

The occurrence of disease due to atypical mycobacteria is unusual in non-pulmonary situations except for cervical neck glands. Atypical tuberculosis glands may be diagnosed on tuberculous histology plus the isolation of atypical mycobacteria (in the absence of human organisms) or on the isolation of the specific bacillus on three separate occasions from pus or sinuses. In other sites or organs there should be tuberculous histological or radiological changes plus the isolation of the mycobacterium on at least three occasions except in the case of surgically resected specimens where only a single culture may be possible.

- (vi) *Council reviewed its recommendations of 1960 with regard to the frequency of compulsory mass X-ray surveys and gave as its opinion and recommendation—*
- (a) The great success of the Australian Tuberculosis Campaign has been based on the compulsory mass X-ray.
  - (b) Surveys should continue until tuberculosis has reached considerably lower numbers of new notifications than at present.
  - (c) Policy with regard to mass surveys should be kept under regular review by the council.
  - (d) The interval between surveys should be related to the discovery of active tuberculosis from this source.
  - (e) Interval between surveys of 4 to 5 years is considered appropriate for the present incidence of disease discovered.
  - (f) Areas where the yield of cases from mass X-ray surveys is above 0.5 per 1,000 of active tuberculosis warrant more frequent attention.
  - (g) Present surveys should have as their second priority the accumulation of data of those with pulmonary abnormalities who require further observation.
- (vii) *Council recommends for State consideration that the requirement for a migrant to have a chest X-ray within one month of arrival in the State should be waived in any case where evidence of a satisfactory chest X-ray within the previous six months is available and acceptable to the State Director of Tuberculosis.*

#### FOURTH AUSTRALIAN TUBERCULOSIS CONFERENCE

This conference was held in Tasmania on the 16th to 20th March, 1970. The following from New South Wales delivered papers:

Dr F. W. ROSS—Tuberculosis Surgery over 10 years at Randwick Chest Hospital.

Dr. V. G. S. DESGRAND—Long Term Dividends from Mass Surveys.

Dr H. I. MCKENZIE—Right ventricular wall thickness in relation to four common lung conditions.

#### RIFAMPICIN TRIAL

As mentioned earlier in this report the trial is proceeding, and proceeding satisfactorily. It will be reported on in 1971.

#### CAPITAL AND MAINTENANCE EXPENDITURE

Following on receipt of the capital and maintenance expenditure document from the Commonwealth Health Department of 1969, the year 1970 saw many visits being paid to hospitals with both in-patient and out-patient units as well as others who make claims for tuberculosis expenditure.

#### CONCLUSION

In conclusion a slight reduction in tuberculosis morbidity occurred during 1970, however unfortunately the mortality rate was slightly higher. As explained, this was related to those cases where death was due to tuberculosis as an indirect cause, and not a direct one. A further decrease has been noticed in the chronic positive register. Only thirteen cases with typical organisms and eight with atypical organisms were reported in 1970. Succeeding years should well see a further improvement in both mortality and morbidity rates. However, it behoves us to be certain that every procedure carried out is critically examined and looked at not only from the humane and statistical point of view but from that of expense. For the continuation of the tuberculosis campaign those of us who are associated with it must ensure that what is being done is not only reasonable and practicable but also essential.

This opportunity is taken to express thanks to the senior officers of the New South Wales Department of Health, the Commonwealth Health Department, the Hospitals Commission, the staff of the Division of Tuberculosis, the Anti-Tuberculosis Association of New South Wales and other intra and inter-departmental personnel and organizations without whose ever ready continuing assistance and whole-hearted co-operation this campaign would not continue to succeed.

## IMMUNISATION CENTRE

*Medical Officer-in-Charge:* J. R. B. BEAUMONT, B.Sc., M.B., B.S., D.A., F.F.A.R.A.C.S.

*Location:* 7th Floor, Winchcombe House

9-13 Young Street, Sydney

*Function:* Vaccine Distribution

### POLIOMYELITIS VACCINE

This section undertakes the regular distribution of poliomyelitis vaccine throughout the State of New South Wales, to local authorities and medical practitioners in the metropolitan area and to medical officers of health in health districts.

### RUBELLA VACCINE

Rubella vaccine for the use of medical officers of health, departmental officers immunizing school children and private and public hospitals is stored at and distributed from the Immunization Centre.

### ANTHRAX VACCINE

Anthrax vaccine for the use of departmental officers in the protection of Agriculture Department staff is ordered by and distributed from the centre.

### INFLUENZA VACCINE

The immunization of police and ambulance officers through New South Wales was organized through the centre for the 2nd year in succession. Vaccine obtained from the Commonwealth Serum Laboratory was distributed to ambulance transport and police centres throughout New South Wales outside the metropolitan area. Police in the metropolitan area were vaccinated at the Immunization Centre and centres set up at the Police Training Centre and the Criminal Investigation Branch in Campbell Street.

### IMMUNIZATION CENTRE

An immunization clinic is conducted on the 7th floor, 9-13 Young Street, Sydney for vaccination against poliomyelitis, pertussis, diphtheria, and tetanus and other diseases as required.

#### Staff

One clerical assistant.

### POLIOMYELITIS VACCINATION CAMPAIGN

Mass vaccination with Sabin vaccine has continued throughout the year.

Quantities of poliomyelitis vaccine issued by the Immunization Centre to authorities during the past 4 years were:

	1967		1968	1969	1970
	Salk	Sabin	Sabin	Sabin	Sabin
	Doses	Doses	Doses	Doses	Doses
Medical Officers of Health and Metropolitan Councils.	102,408	4,804,560	1,130,800	592,480	496,420
Immunization Centre .. .. .	485	7,140	8,300	3,320	1,920
Total .. .. .	102,893	4,811,700	1,139,100	595,800	498,340

*Total Sabin Issues* (1st May, 1967, to 31st December, 1970.) 7,041,700 doses.

Returns of vaccine received at the Immunization Centre from the various administering authorities, show that the number of doses of Sabin vaccine administered during 1970 were as follows:

*Year ending 31st December, 1970*

Age group	Number of doses				
	First dose	Second dose	Third dose	Boosters	Total
0-4 years .. .. .	78,359	70,758	68,985	39,518	257,620
5-19 years .. .. .	12,894	11,059	10,639	4,100	38,692
20-39 years .. .. .	17,116	15,452	14,569	9	47,146
40 years and over .. .. .	2,422	1,686	1,636	1	5,745
Total .. .. .	110,791	98,955	95,829	43,628	349,203

*Vaccine Issued:* 498,340 doses.

## PUBLIC HEALTH SERVICES

### HEALTH INSPECTION BRANCH

*Chief Health Inspector: K. W. BAGNALL*

*Location: 9-13 Young Street, Sydney*

#### STAFF AS AT 31st DECEMBER, 1970

Establishment at Head Office comprised:

- 1 Deputy Chief Health Inspector
- 4 Senior Health Inspectors
- 12 Health Inspectors (3 positions vacant and 1 on secondment)
- 3 trainee Health Inspectors (1 vacancy)
- 2 Registered Surveyors (1 vacancy)
- 1 Senior and 1 Junior Tracer (female)
- 2 female Office Assistants
- 1 Attendant to assist Surveyors
- 1 Records Clerk

Seven Senior Health Inspectors and twenty Health Inspectors (two positions vacant) were detached for duty in the various health districts.

#### STAFF CHANGES

There were ten appointments (six Health Inspectors, one Cadet Health Inspector, one Tracer (female), two Clerical Assistants. Seven staff changes occurred involving transfers (three Senior Health Inspectors, three Health Inspectors, one Attendant to another branch of this Department. Five Health Inspectors resigned, one Health Inspector remained on seconded duty to the Territory of Papua and New Guinea.

#### GENERAL

Regular inspections were made during the year of nightsoil and garbage depots in local authority areas. It was found that some councils were not disposing garbage in accordance with conditions laid down by this Department to avoid the creation of nuisance. It was necessary to serve a notice under section 65 Public Health Act on one council to abate a continuing garbage nuisance. Inadequate cover material and the disposal of garbage into water, fly, and vermin infestation were the main defects. Non-putrescible refuse tips continued to be a source of nuisance and frequent inspections by departmental health inspectors were found necessary throughout the year. Generally the disposal of nightsoil was found to be satisfactory.

Most of the numerous complaints received in the branch related to drainage nuisances and some serious public health hazards were investigated. In most instances the complainants had been unable to obtain satisfactory action from the local council.

Public swimming pools were regularly inspected during summer months and pool waters tested. Field tests included those for pH, alkalinity, and residual chlorine readings. Samples of water were collected from many baths and bathing areas for bacterial examination. There was an improvement in the standards for public pools and this is largely attributed to the work carried out by departmental health inspectors in this field.

Surveys covering several aspects were carried out by departmental health inspectors during the year. In Sutherland Shire a survey of drainage disposal in unsewered areas revealed numbers of unsatisfactory conditions and the local authority was requested to cause a systematic investigation of drainage disposal. Departmental action is continuing in this respect.

A sanitary survey of Lord Howe Island was carried out and all aspects of sanitation and environmental hygiene were investigated. All matters requiring attention were forwarded to the Lord Howe Island Board for appropriate action.

In Warringah Shire a survey was instigated into the problem concerning collection and disposal of septic tank effluent by council's tanker removal service. The matter was discussed in conference by senior departmental officers and shire council representatives. The gradual extension of sewerage facilities to the Shire will alleviate problems in certain areas. However the situation will need to be kept under review by departmental health inspectors as sewerage extensions are not keeping pace with residential developments.

Applications for approval of septic tank designs prior to manufacture using reinforced ferro-concrete, or fibreglass were dealt with during the year. A register of manufacturers of precast septic tanks was compiled and is maintained in the branch and up to date copies supplied to health districts.

Several chemical closets and other sanitary appliances were tested by branch officers and recommendations regarding approval or otherwise made to the Board.

Manufacturers of polyethylene garbage bags increased in number and many bags were tested and recommended for approval. The use of these bags increased rapidly and were widely accepted by the public. The bags served a useful purpose for storing garbage during numerous industrial strikes by garbage collectors. However, due to misuse by the public in placing broken glass, etc., in bags, several injuries were sustained by garbage collectors. As a result some councils resolved not to permit their use for garbage retention.

### NOXIOUS TRADES

The functions of the Noxious Trades Act, 1902 remained unchanged. However in planning schemes or interim development orders under town and country planning the position was clarified concerning the classification "Offensive or hazardous". The State Planning Authority agreed that in all future planning schemes ordinances to be prescribed, there will be omitted from the definition of "Offensive or hazardous industries", any reference to trades declared noxious under the Noxious Trades Act, 1902. This should overcome problems experienced by intending trades that were created by zoning restrictions.

### SURVEY SECTION

During the year the following work was carried out:

Inspections of individual allotments of land in notified areas	..	..	60
Surveys of individual allotments of land in notified areas	..	..	280
New areas of land notified under section 55	..	..	Nil
Areas of land notified under section 55 wholly revoked	..	..	1
Areas of land which were partly revoked	..	..	14

During the year 111,515 applications for search—unhealthy building certificates were processed, an increase of 2,774 over the same period for the previous year.

Fifty less surveys and 120 less inspections were made than during the previous twelve monthly period due to the vacant position of Surveyor not being filled.

### SPECIAL INVESTIGATIONS

Extensive inquiry was made in the metropolitan area (Sydney) concerning the disposal of liquid trade waste and sludges, removal services, and the areas used for tipping, operated either by local authorities or private companies. Health inspectors of the branch assisted Mr A. E. Barton, who carried out an independant survey of the problem for the New South Wales Government. Senior health inspectors were co-opted into the working party which was convened by the Parliamentary Sub-committee on Waste Disposal. Knowledge of the problem contributed by officers in the branch was greatly appreciated.

A health inspector investigated manufacturing processes for the treatment of fleshings carried out by the hide tanning industry, under the Noxious Trades Act. This involved an itinery of visits to premises in Brisbane, Queensland, under the control of the Brisbane City Council, and appreciation is recorded for the courtesy extended and information gained from officers of this council.

### TRAINING PROGRAMMES

Training sessions were conducted for health inspectors throughout the year. Courses were initially designed to provide newly appointed inspectors with an efficient working knowledge of practical health inspection as quickly as possible, also to combat resignations of experienced staff.

The sessions were expanded by introduction of group participation, use of slide films and overhead projection. Sessions were well attended and considered highly successful from a training point of view.

Experts from industry also gave freely of their time and delivered informative lectures on matters such as swimming pool care; odour control by counteractants and waste water treatments. Upon request from the Commonwealth Health Department a comprehensive training programme was arranged for Mr Peter Peter, Senior Health Inspector from Fiji. Mr Peter had been granted a Fellowship for training under the United Nations Development Programme. The services of health inspectors of the branch were utilized to assist Mr Peter.

## COMMITTEES AND CONFERENCES

The Chief Health Inspector, or his deputy, was engaged on a number of committees which included; The Examining Committee for Licences for Fumigators using dangerous substances; The Standing Technical Committee on Septic Tanks; The Hunter River Pollution Control Committee; the Lake Macquarie Pollution Control Committee, various committees for the Standards Association of Australia, Committees, Examining Board for the Royal Society for the Promotion of Health, Examining Board for the Pool Managers Association of New South Wales, and numerous inter-departmental committees.

TABLE I—WORK PERFORMED BY HEALTH INSPECTORS IN METROPOLITAN AREA

	1969	1970
Local Government areas surveyed .. .. .	10	3
Inspection of buildings, shops, warehouses, produce stores, etc. .. .. .	181	636
Hospitals, institutions and schools inspected .. .. .	59	95
Aborigine Reserves inspected .. .. .	2	3
Inspection of hotels, motels, boarding houses, and lodging houses .. .. .	60	60
Theatres and Public Halls inspected .. .. .	9	6
Ventilation tests and odour control investigations .. .. .	20	17
Barber shops and hairdressing salons inspected .. .. .	52	224
Inspection of dilapidated and insanitary buildings .. .. .	59	60
Noxious trades premises inspected .. .. .	495	532
Dead wool processing and hide and skin stores inspected .. .. .	14	54
Bedding and upholstering premises inspected and samples collected .. .. .	28	121
Second hand clothing shops inspected .. .. .	24	26
Carpet and underfelt manufacturers inspected .. .. .	..	20
Abattoirs—drainage treatment and disposal investigations .. .. .	18	11
Dairies, pig and poultry farm inspected .. .. .	126	42
Pet food shops inspected .. .. .	138	38
Public swimming pools inspection and testing .. .. .	135	250
Show grounds, cattle sale yards, cemeteries, crematories, camping grounds, and caravan parks inspections .. .. .	96	95
Nuisances investigated .. .. .	844	1,087
River, bay and beach pollution investigation .. .. .	152	330
<i>Nightsoil and Garbage</i>		
Scavenging districts assessed .. .. .	18	8
Sanitary depots, existing and proposed—site inspections .. .. .	590	801
Water supplies, public and private investigated .. .. .	14	22
Sewerage treatment works, existing and proposed—site inspection .. .. .	55	68
<i>Septic Tanks</i>		
Number of sites recommended for approval .. .. .	6,056	3,511
Number of sites refused .. .. .	770	934
Bores inspected .. .. .	19	26
Bores tested .. .. .	5	15
New plans examined for approval .. .. .	23	38
Manufacturer's premises inspected .. .. .	37	75
Existing septic tanks .. .. .	526	2,784
Applications received .. .. .	6,826	*
<i>Investigations of Infectious Diseases and Chemical Poisoning</i>		
Number of cases investigated .. .. .	4	1
<i>Examination of Proposals Submitted</i>		
Planning schemes .. .. .	5	1
Plans of swimming pools and treatment plants .. .. .	4	2
Package sewage treatment works .. .. .	6	7
Sampling of water, Effluents, trade waste etc. .. .. .	193	495
Sampling of other materials .. .. .	20	129
Sampling of swimming pool water .. .. .	59	120
Special investigations .. .. .	27	74
Consultations with engineers and architects and councils .. .. .	306	383
<i>Legislation</i>		
Preparation of draft amendments to Acts and Regulations .. .. .	3	2
Examination of draft legislation submitted by Department of Local Government .. .. .	1	2
<i>Health Education</i>		
Brochures and pamphlets prepared .. .. .	27	7
Brochures and pamphlets published .. .. .	3	..
<i>Intraining and D.P.H. Training</i>		
Courses conducted (sessions) .. .. .	17	18
<i>Legal Proceedings</i>		
Departmental .. .. .	..	..
Appearances for councils .. .. .	..	..
Unhealthy building land inspections .. .. .	180	60
Unhealthy building land surveys .. .. .	330	280
Land enquiries .. .. .	108,741	111,515
Areas revoked and partially revoked .. .. .	3	1
Areas of land notified .. .. .	8	14

\* Following an O & M survey, septic tank applications are no longer registered and figures are not available.

## FOOD INSPECTION BRANCH

*Chief Inspector:* W. J. MADGWICK

*Location:* 9—13 Young Street, Sydney

### STAFF

Deputy Chief Inspector, J. W. Wing

7 Senior Food Inspectors

15 Food Inspectors

1 Office Assistant

### NOTES:

- (1) Of the 7 senior food inspectors referred to above, one is detached for duty at each of the following health districts:

Western Metropolitan, North Coast, South Coast, North Western, Western, Newcastle and Riverina. Three food inspectors are detached for duty in the Western Metropolitan Health District and one food inspector in each of the Health Districts of the North Coast, South Coast and Newcastle.

- (2) This report does not include the work carried out in the abovementioned health districts.

### ACTIVITIES

The work of the branch is primarily concerned with the supervision of the sale of food, and in a minor way with drugs, in regard to their composition, identity and labelling; the structure and condition of premises in which food and drugs are manufactured, stored and sold; the inspection of the equipment, appliances and vehicles used; the incidental duties associated with matters to secure the wholesomeness, cleanliness and freedom from contamination of food and drugs; and the implementation of the legal provisions required by the Pure Food Act, 1908, as amended.

### FOOD SAMPLING

A total number of 2,582 samples of food of various kinds were purchased and submitted for analysis, and 3,116 samples of meat and 2,325 samples of spirits were field-tested by officers of the branch. Four hundred and twenty-seven samples of food were found to be below the prescribed standard and 240 successful prosecutions were instituted against traders for selling adulterated food and food not of the nature demanded by the purchaser; resulting in the imposition of \$10,161 fines and costs.

Of the warnings issued several were in respect of the finding of proteolytically active enzymes in meat, casein in sausages, and also pork and beef sausages containing meat other than that descriptive of the product.

### SEIZURES

A total of over 101 tons of food, including large quantities of cheese, fish and prawns and nuts were seized and destroyed, in addition to 5,158 head of poultry, 12,423 bottles and cans and 15 cartons of assorted foods, being unfit for human consumption.

### PREMISES

Of 3,693 premises used for the storage, preparation or sale of food inspected, 138 notices were served on occupiers of premises which required some remedial action in the way of structural repairs or other action to comply with the provisions of the Act and regulations.

Thirty-four traders who failed to keep food premises clean were convicted and fined a total of \$3,096.00. Under the provision of section 51A of the Act four of these premises were closed for a period of 14 hours to enable the premises to be cleaned to the satisfaction of an officer. One other trader whose premises was forever to be clean after 24 hours closure was required to remain closed for a further period of 6 days before being cleaned sufficiently to resume trading.

### GENERAL BREACHES

One hundred and twenty convictions were recorded and traders were fined a total of \$3,826. Fifty-one were fined for smoking whilst preparing food, twenty-four for exposing food to dust, 6 for selling unlabelled oysters, five for failing to keep premises free from cockroaches. Other breaches included unnecessary food handling; animals in food premises, fly infested premises and unclean food delivery vehicles.

## COMPLAINTS

A record number of 1,908 complaints made by members of the public concerning food matters were investigated, many of which resulted in legal proceedings against food traders and persons delivering food in contravention of the regulations.

## LEGAL PROCEEDINGS

The total number of prosecutions instituted was 396 and fines and costs amounted to \$17,167.

The amount of \$17,167 fines and costs in relation to the number of prosecutions is much higher than previously recorded due to the amendment to the Act and regulation which provided for increased penalties for certain types of offences.

## INSPECTION OF DEPARTMENTAL HOSPITALS, CHILD WELFARE AND PRISON ESTABLISHMENTS

Advice on food matters was given by means of inspections and reports to thirty-four departmental hospitals, child welfare and prison establishments.

## PUBLIC RELATIONS

The Chief Food Inspector addressed seventeen health, food industry and service organizations, appeared on Television Channel 7 and was interviewed on radio stations 2FC, 2GB and 2UE.

## AMENDMENTS TO REGULATIONS

Amendments to the regulations were gazetted during the year for the following:

- Standard for Dessert and Custard Mixes or Powders.
- Standard for Fruit Juices, Sweetened Fruit Juices and Concentrated Fruit Juices.
- Standard for Cream and for Imitation Cream.
- Standard for Sauces and Chutneys.
- Standard for Brewed Soft Drinks.
- Dating of prepacked meat.
- Use of fibre glass in meat delivery vehicles.
- Increase of penalties for offences under the Regulations.
- Labelling of Dried Milk Powder.

## CODEx ALIMENTARIUS COMMISSIONS FOOD STANDARDS

In anticipation of the first batch of food standards being forwarded by the Codex Alimentarius Commission for adoption as regulations within the States legislation, the Chief Food Inspector, was appointed as "Codex Contact Point" for New South Wales.

## COMMITTEES

The Chief Food Inspector is a member of the following Committees which held meetings during the year and which he attended:

- National Health and Medical Research Council's Food Standards Committee.
- Pure Food Advisory Committee (Advisory member).
- New South Wales Health Week Council.
- Department of Technical Education's Baking Trades Advisory Committee.
- Departmental Committee on Fat content of minced meat.
- Interdepartmental Committee on Pesticide Residues in Food.
- Advisory Committee to the Department on Service of frozen food in hospitals.

## VISITS TO HEALTH DISTRICTS

The Chief Food Inspector made visits to the following health districts:

Riverina.

Newcastle.

Western Metropolitan.

and the Deputy Chief Food Inspector visited the:

North Coast Health District.

## OVERSEAS VISITORS

The undermentioned was attached to the branch for the purpose of studying its activities and administration:

Mr Peter Peter, Senior Health Inspector, Ministry of Public Health, Thailand.

TABLE 1—SUMMARY OF WORK PERFORMED BY THE PURE FOOD BRANCH (CENTRAL ADMINISTRATION)  
FOR THE YEAR ENDING 31ST DECEMBER, 1970

[illegible]

### TABLE 2—SUMMARY OF LEGAL PROCEEDINGS, 1970

Offences under the Pure Food Act and Regulations	Number of Prosecutions	Amount of fines and costs
Adulterated food .. .. .	233	\$ 10,047.00
Adulterated milk .. .. .	7	114.00
Unclean premises .. .. .	34	3,096.00
General breaches .. .. .	120	3,826.00
<i>Other Acts—</i>		
Local Government Act (Ordinance 39) .. .. .	2	84.00
Totals .. .. .	396	\$17,167.00

FOOD SAMPLES

Particulars of Samples of Food Taken for Analysis by Officers of the Food Branch during 1970

Samples	No. of Samples	No. of Warnings	No. of Prosecutions	Fines and costs
Ales and Beer .. .. .	26	....	....	....
Bread .. .. .	23	....	....	....
Bacteriological .. .. .	127	....	....	....
Butter .. .. .	7	....	....	....
Condiments and sauces .. .. .	6	....	....	....
Confectionery .. .. .	10	....	1	42.00
Cordials, Juices, and Drinks .. .. .	102	1	....	....
Cream and Cream Mixture .. .. .	61	....	....	....
Egg Pulp .. .. .	13	....	....	....
Fish .. .. .	56	....	1	22.00
Fruit (fresh and preserved) .. .. .	27	....	....	....
General—Miscellaneous .. .. .	66	....	....	....
Ice-cream and Ices .. .. .	33	....	7	124.00
Jam .. .. .	18	....	....	....
Margarine .. .. .	3	....	....	....
Meat and Manufactured Meat .. .. .	1,456	184	214	9,500.00
Meat (Malachite tested—3,116) .. .. .	....	....	....	....
Milk .. .. .	502	1	7	114.00
Peanut butter and peanuts .. .. .	15	1	1	52.00
Salt .. .. .	2	....	....	....
Spirits and wines .. .. .	23	....	9	307.00
Vinegar .. .. .	6	....	....	....
	2,582	187	240	10,161.00

SEIZURES

Particulars of Food Seized at Being Unfit for Human Consumption and Destroyed during 1970

Food	Tons	Cwts	Qtrs	Lb	Other Amounts
Biscuits .. .. .	2	16	3	..	
Butter .. .. .	1	6	..	..	
Condiments .. .. .	..	..	..	..	7,856 dozen bottles
Confectionery .. .. .	..	..	3	16	
Cheese .. .. .	32	2	..	..	
Cereals .. .. .	..	3	..	..	
Fish and Prawns .. .. .	40	19	1	22	3,751 cans
Fruit (dried) .. .. .	8	2	..	..	
Groceries, assorted .. .. .	4	11	..	10	15 cartons
Meat, canned .. .. .	..	..	..	..	816 cans
Nuts .. .. .	20	10	3	5	
Olives .. .. .	..	2	2	20	
Poultry .. .. .	..	..	..	..	5,158 head
Rice .. .. .	2	2	..	..	
Vegetables, dried .. .. .	8	7	1	18	
Total .. .. .	101	4	..	7	7,856 dozen bottles 4,567 cans 15 cartons 5,158 head

## PARTICULARS OF INSPECTIONS BY OFFICERS OF THE PURE FOOD BRANCH DURING 1970

District	No. of Inspections	No. of Warning Notices	No. of Prosecutions	Fines and costs
<b>METROPOLITAN—</b>				
Ashfield .. .. .	103	1	2	74
Bankstown .. .. .	116	1	....	....
Blacktown .. .. .	2	....	2	304
Botany .. .. .	46	4	....	....
Burwood .. .. .	83	3	3	211
Canterbury .. .. .	107	9	1	152
Concord .. .. .	53	3	....	....
Drummoyne .. .. .	54	2	2	164
Hornsby .. .. .	312	10	....	....
Hunter's Hill .. .. .	29	....	....	....
Hurstville .. .. .	57	1	1	27
Kogarah... .. .	87	4	....	....
Ku-ring-ai .. .. .	179	2	....	....
Lane Cove .. .. .	66	1	....	....
Leichhardt .. .. .	239	12	....	....
Manly .. .. .	36	2	....	....
Marrickville .. .. .	175	10	2	154
Mosman... .. .	37	1	1	82
North Sydney .. .. .	151	8	....	....
Randwick .. .. .	102	10	....	....
Rockdale .. .. .	134	5	....	....
Ryde .. .. .	164	3	....	....
South Sydney .. .. .	77	5	1	42
Strathfield .. .. .	109	4	1	77
Sutherland .. .. .	238	2	....	....
Sydney .. .. .	337	18	12	1,442
Warringah .. .. .	172	9	....	....
Waverley .. .. .	72	5	1	72
Willoughby .. .. .	258	....	1	102
Woollahra .. .. .	86	2	....	....
<b>COUNTRY—</b>				
Broken Hill .. .. .	12	1	4	193
<b>Totals .. .. .</b>	<b>3,693</b>	<b>138</b>	<b>34</b>	<b>\$3,096</b>

## PARTICULARS OF GENERAL BREACHES OF THE PURE FOOD ACT AND REGULATIONS UNDERTAKEN DURING 1970

Offence	Number of prosecutions	Fines and costs
		\$
Smoking in food premises .. .. .	51	1,346
Unlabelled oysters .. .. .	6	187
Unnecessary food handling .. .. .	3	106
Food including bread exposed to dust .. .. .	24	541
Permit animals in food premises .. .. .	4	158
Unwrapped food exposed on counter .. .. .	4	98
Fly infested premises .. .. .	2	304
Cockroach infested premises .. .. .	5	279
Receptacle in a drip tray .. .. .	2	104
Waste beer not coloured .. .. .	2	74
Material carried in vehicle likely contaminate food .. .. .	1	42
Refuse to permit sample to be taken .. .. .	1	87
Assault an officer .. .. .	1	37
Food carried in "boot" of car .. .. .	6	157
Use bag to cover dough .. .. .	1	42
Serve food with dirty hands .. .. .	1	22
Unclean receptacle .. .. .	1	32
Food stored less than 2 ft 6 in above ground .. .. .	1	42
Unclean delivery vehicle .. .. .	2	89
Apply mouth to tube to syphon food .. .. .	1	17
Unclean window space .. .. .	1	62
Totals .. .. .	120	\$3,826

PRIVATE HOSPITALS BRANCH

Medical Officer-in-Charge: J. R. RADCLIFF, M.B., B.S., D.A., F.F.A.R.C.S.I.  
Location: 9-13 Young Street, Sydney

The branch continues to supervise private hospitals and rest homes in accordance with the licensing provisions of the Private Hospitals Act and regulations. The non-clerical staff at Central Administration consists of one medical officer in charge and three triple-certificated Supervisory Sisters.

Premises are routinely inspected twice annually and additionally for licensing new or altered premises, to give advice, in the event of complaint, and to determine requirements for transfer of licence.

Discussions are held with licensees and their architects in regard to new buildings or alterations. The Board of Fire Commissioners continues to render valuable assistance by inspections and advice.

Amendments to the Private Hospitals Act and regulations were approved by the Board of Health in 1969 and the amendments to the regulations have been gazetted in 1970.

The licence of one rest home was revoked during the year.

SUBMISSIONS TO THE BOARD OF HEALTH

The following table shows the number of items submitted for consideration by the Board of Health at its monthly meetings in the last 5 years.

	1970	1969	1968	1967	1966
New licences .. .. .	22	25	16	20	27
Transfer of licence .. .. .	55	64	65	79	64
Amendments of licence .. .. .	128	116	151	149	168
Appointments of Resident Manager ..	252	292	267	307	313
Plans submitted .. .. .	198	197	164	183	175

METROPOLITAN AREA

During the year the number of inspections has been curtailed by the shortage of staff in the metropolitan area extending over several months. Inspections during the last 5 years have been as follows:

	1970	1969	1968	1967	1966
By Supervisory Sisters .. .. .	834	941	954	943	853
By Sisters with Medical Officer .. .. .	134	140	145	127	94

During 1970 the number of private hospitals has decreased by 5 to 87 and their bed capacity by 214 to 3,447.

During the same period the number of metropolitan rest homes has increased by 15 to 355 and their bed capacity by 1,590 to 14,372.

HEALTH DISTRICTS

In country areas the functions of the branch are exercised by the Medical Officer of Health but agenda for the Board of Health is processed by Central Administration.

During 1970 the number of private hospitals has decreased by 3 to 27 and their patient accommodation has decreased by 32 to 584. The number of rest homes has increased by 7 to 81 and their patient accommodation has increased by 579 to 2,807.

ACCOMMODATION IN PRIVATE PREMISES IN N.S.W.

Year	Private Hospitals		Rest Homes	
	Beds	Cots	Beds	Cots
1961 .. .. .	4,131	191	5,680	58
1962 .. .. .	4,295	231	6,399	58
1963 .. .. .	4,619	252	7,497	49
1964 .. .. .	4,477	266	8,584	55
1965 .. .. .	4,433	273	9,358	71
1966 .. .. .	4,389	284	10,758	87
1967 .. .. .	4,271	412	11,633	113
1968 .. .. .	4,090	413	13,090	88
1969 .. .. .	3,925	352	14,838	172
1970 .. .. .	3,709	322	17,024	155

At the end of 1970 there were in New South Wales 550 private premises with accommodation for 21,210 patients (an increase of 1,933 patients for the year).

## DIVISION OF HEALTH EDUCATION

*Director:* Dr S. J. KRISTER

*Address:* 9-13 Young Street, Sydney

**Staff as at 31st December, 1970**

							<i>Permanent</i>	<i>Temporary</i>
Professional	..	..	..	..	..	..	9	6
General Division	..	..	..	..	..	..	14	7
Clerical Division	..	..	..	..	..	..	5	3
							<hr/> 28 <hr/>	<hr/> 16 <hr/>

### NEW DEVELOPMENTS

The most significant development of the year was the provision of a financial grant from the Commonwealth for a State programme of health education aimed at preventing or mitigating the prevalent problem of abuse of drugs.

The grant enabled the division to set up a special section to devise and implement a community-wide programme.

A first appointment of a health education officer to the Bureau of Maternal and Child Health was made. The task of this officer is to examine the health education role of bureau staff and to introduce measures to further develop health education for parents and children.

During the year the Director was awarded a public health travelling fellowship by the National Health and Medical Research Council, visiting North America, Britain, Europe, the U.S.S.R., and India.

The senior dietitian was a member of a committee that studied the "meals-on-wheels" organizations on behalf of the N.S.W. Council of the Aged.

### HEALTH EDUCATION ADVISORY COUNCIL AND ITS CHILD HEALTH COMMITTEE

The council began studies of the following topics during the year:

- Special health education needs of migrants.
- Health education needs in hospitals.
- Community programmes to prevent hydatid disease.
- Existing and required programmes of parent education.
- The current status of school health education.

### HEALTH EDUCATION TRAINING

The Health Education Training School was transferred from the North Ryde Psychiatric Centre to new premises at the Child Health Centre, Ryde. The following training courses were conducted:

- (a) A 3-day refresher course for Health Education officers.
- (b) A course for psychiatric nurse educators.
- (c) Two series of lecture/discussions on teaching techniques for departmental officers.
- (d) A 4-day drug workshop for approved educators in the Drug Education programme.
- (e) Three evening courses for untrained staff of child care centres:
  - (i) a first-level course of 10 weeks for North Shore centres;
  - (ii) a first-level course of 10 weeks for Ryde area centres;
  - (iii) a pilot third level course of 8 weeks for the original pilot group.

The Child Care Centre staff who have attended the evening courses have formed themselves into a Metropolitan Association of Independent Kindergartens. It meets bimonthly with guest speakers and has attracted staff who have not attended the division's courses. It now sees itself as having a definite educational function.

A syllabus has been devised for a part-time certificate course in Child Care. This will be implemented shortly by the newly formed Welfare Services Training Council. (Department of Child Welfare.)

- (f) Two In-Service training courses for Dental Health educators of the Dental Health Education and Research Foundation.
- (g) Five 1-day Community Nurse courses for nurses undertaking courses of tertiary nursing education requiring a knowledge of community educational techniques.
- (h) A 1-week course for Trainee Recreation officers preparing to work in psychiatric hospitals.
- (i) Two courses of Health Education for mothercraft nurses.
- (j) Two courses on Parent Education.
- (k) Two courses of Community Health for tuberculosis nurses.
- (l) Two post-certificate courses for Health Inspectors on behalf of the Department of Technical Education.

In addition, Divisional staff participated in the following courses:

- (a) A first-level course at Wollongong and a second-level course at Parramatta for Child Care Centre staff.
- (b) In-service courses for infants, primary, and secondary school teachers at:
  - (i) Eastern Suburbs, Child Health Centre;
  - (ii) Sydney Teachers College;
  - (iii) Catholic Office of Education.
- (c) A course in counselling techniques for industrial health nurses offered by the Division of Occupational Health.
- (d) Several courses in the theory and practice of Health Education for the N.S.W. State Cancer Council.
- (e) Two Aboriginal nurse training courses.
- (f) The Health Education strand of the Public Health Nurses courses conducted at Randwick Chest Hospital.
- (g) Six Youth Education Seminars Ltd courses for youth leaders.
- (h) Undergraduate medical and dental courses at New South Wales and Sydney Universities.
- (i) N.S.W. College of Nursing courses for nurse administrators, nurse educators, and occupational health nurses.
- (j) Mothercraft nurse courses.

### **Reference Material for Teachers**

The Education Officer (School Health) has been involved in the preparation and evaluation of resource material for teachers in secondary school. The first unit: "Consumer Health" (personnel, products, and services), has been used on an experimental basis in Sydney, Newcastle, Wollongong, and A.C.T. It has now been submitted to the Education Department for approval as the first complete unit of teacher resource material in support of the Health Education syllabus in schools.

A second unit on the Use of Drugs (alcohol, tobacco, and other substances with potential for misuse) has been produced and will shortly be evaluated.

A unit of objectives, concepts, teaching strategies and basic information on Dental Health has been compiled and is to be distributed to teachers as an accompaniment to "Dental Health Facts for Teachers".

Research has begun on a unit entitled "Family Life". Teaching aids are being prepared to accompany these units.

## **COMMUNITY EDUCATION**

### **Nutrition**

#### *(a) Public Lectures*

The number of addresses given on request to community groups in the metropolitan area continued at a high rate (78 to adult and 4 to children). This service was also provided for a small number of groups in country areas. Talks to expectant mothers attending prenatal clinics were popular, 118 being given at departmental and Karitane clinics. Sixty-four lectures were given to students attending various courses including student kindergarten and nursery school teachers, child welfare officers, mothercraft and public health nurses and dietetic students.

### (b) *Consultation*

Four departmental prenatal clinics were attended weekly at Manly, Dee Why, Liverpool, and Parramatta to provide a diet consultation service.

Two clinics for overweight school children were conducted regularly throughout the school year—one at Forest Lodge and the other at Eastern Suburbs Child Health Centre.

Individual enquiries on many aspects of food and nutrition were answered and therapeutic diet instructions prepared for patients referred by their physicians.

Advice on the nutritional adequacy and suitability of the diet was given to several nursery schools, two homes for the elderly, a meals on wheels organization and a boarding school.

The results of the school canteen survey were published. A programme of discussion on management, nutritional, and educational roles of the canteen for the organizers of school canteens in the educational and nutritional aspects of their projects was introduced.

### **Youth Programme**

In 1970 the major health education project involving adolescents was the survey conducted by Macquarie University, at the request of the Bankstown Council, to determine the habits, interests, and needs of youth in that municipality. The health education officer attached to the youth programme was associated with the study to assess and possibly implement a health education programme resulting from the study.

Through the Mental Health Association's Adolescent subcommittee a pilot health advisory service was established at the Ryde Child Health Centre.

A 1 day conference "The Adolescent Experience" was planned and implemented for the members of the Association of Youth Organizations (A.Y.O.). The division also provided assistance with programme planning and lecturer services for the week long "Fifth National Assembly of Youth", organized by the Association of Youth Organization.

A course by Youth Education Seminars Ltd (Y.E.S.), was initiated for youth leaders in industry and supported financially by the Department.

A series of health lecture-discussions were presented to Qantas commercial and technical trainees who expressed satisfaction with the sessions. Plans have been made for another course to be undertaken in 1971.

### **Migrants and Health Education**

A survey of Health Education needs of migrants whose native language is not English revealed obvious needs for health education. Consultations took place with the Department of Immigration which resulted in the initiation of a pilot health education service at Westbridge Hostel.

### **Hydatid Disease**

An initial study was made of reports of education and control measures in various countries. Following this, a divisional officer visited Tasmania to see its control programme in action. A special programme was designed then for New South Wales and is presently being tested in three pilot projects in southern New South Wales.

### **Food Hygiene**

In partial implementation of the recommendations of a report prepared by the division for the National Health and Medical Research Council, a number of lectures were given to groups of food handlers in industry. Advice was also given to two hospitals and several commercial organizations regarding the planning of regular hygiene training courses for their food staff.

### **Cancer Education**

The Health Education officer seconded to the State Cancer Council organized and arranged training programmes for a panel of medical speakers to implement the council's expanded programme of public education.

An important aspect of this programme is the work being carried out on "Smoking and Health" in association with the National Heart Foundation. The main focus of this effort is the schoolchild and his teacher.

A beginning was made on revising the council's free publications by preparation and testing of a new pamphlet on "Papanicolaou Smear". A seven language version of the *Seven Warning Signs* was also produced.

Lecture-discussions on cancer were held at a large number of clubs and service organizations. A programme of lunch-hour talks to members of the public service was initiated successfully in the public service was initiated successfully in the Government Insurance Office. This is being extended to all government departments.

### **Health Districts: Health Education Officers**

Health Education programmes were begun in the Western Metropolitan and South Coast Health Districts. Courses were conducted for preschool kindergarten personnel, parents, baby health centre staff, school children, social workers, and public health nurses.

Health Education exhibits were displayed at local annual shows. New health pamphlet distribution lists were prepared and several pamphlets were translated into languages of particular importance in the two areas.

### **Mental Health and Drug Education**

The staff of this programme was considerably expanded in consequence of a Commonwealth grant for extension of the programme of public education on drugs of dependency.

### **Further Work with Police Department**

The division collaborated with the Crime Prevention and Drug branches in provision of training resources for officers concerned with public education or school programmes.

### **In the Schools**

Mental health consultation programmes continued in a selected group of schools. Preliminary evaluation suggested that it had been an acceptable service to teachers and that benefit had been conferred both on individual teachers and on children.

The division co-operated with the Bureau of Maternal and Child Health and the Guidance Division of the Education Department in producing a simple questionnaire to be administered to mothers of preschool children. This is aimed at identifying children who may require special attention in the early school years to prevent problems of mental ill-health or learning difficulties.

### **Voluntary Workers in Departmental Hospitals**

A series of teaching slides were produced to assist with the training of voluntary workers in psychiatric hospitals.

### **Organization of the Drug Education Programme**

Estimates and staffing requirements were prepared for mounting a major community education programme to combat drug abuse. A staff of sixteen professional and technical personnel was recruited and their training initiated. A State co-ordinating committee representing all involved authorities and agencies was set up and a beginning was made on assembling a large group of professional health, education, and other approved staff as approved educators. After training by the division, the part-time approved educators will become the recognized lecturers and consultants on drug abuse.

A range of publications suitable for use by educators, medical personnel, and community leaders was produced in support of the drug education programme.

## **RESEARCH**

### **Major Research Project—Attitudes to Mental Illness**

This project was completed and results are being analysed.

### **Evaluation of the Activities of Individual Sections of the Division**

Current activities of the Nutrition Section, and the work of health education officers in health districts were examined.

### **The Parent Education Programme**

A survey was made on current programmes available for prenatal and early postnatal parent education programmes. The survey has shown specific gaps in available parent education programmes and will assist P.E.P.A. in providing programmes to fill such gaps.

### **Pretesting of Pamphlets**

Three pamphlets were tested and reports written on the results.

## HEALTH INFORMATION SERVICES

The issue of press and radio material, distribution of publications, and organization of displays and film screenings continued to increase with the general expansion of the division.

### Publications

A heavy demand was experienced for printed educational material chiefly from local authorities, schools, and Baby Health Centres. Requests from the general public also increased. During the year steps were taken to decentralize distribution of publications, bulk supplies being made available to health districts for local distribution.

### Record Cards

Sabin oral vaccine cards, triple antigen immunization cards, and personal medical record cards distributed amounted to approximately 64,600, 54,700, and 27,700 respectively.

### Departmental Periodicals

The Department's journal *Health in N.S.W.* (circulation 21,800) and the quarterly *Newsletter to Medical Practitioners* (circulation 8,100) were published regularly. The departmental bulletin initiated in 1968 continued to prove useful in promoting communication between divisions, branches, and hospitals.

### Press and Radio

Metropolitan, country, and city papers were supplied with topical press articles throughout the year. Weekly broadcast scripts were sent to all radio stations. Nutrition articles were prepared weekly for country and suburban newspapers and radio stations. A number of tape recordings were made for women's sessions including some regional broadcasts of the Department of Agriculture.

### Films

Extensive use was again made of the Department's film resources which were augmented by the purchase of a number of new films and further copies of popular films. Two hundred and fourteen screenings were given to a total audience of 7,717. Borrowings of films from the Department's film library continued to increase. Film loans during the year amounted to 4,868. These were screened to audiences totalling 118,600.

### Special Campaigns

An intensive campaign was carried out to encourage booster immunization of children against diphtheria, whooping cough, poliomyelitis, and tetanus.

An extensive TB survey publicity campaign was again carried out.

A Health Week campaign was organized in collaboration with the N.S.W. Health Week Council, local authorities, governmental, and community organizations.

Notes for radio talks and newspaper articles were distributed together with a poster and 100,000 copies of a special pamphlet.

Special activities carried out in the schools included a health supplement to the *Education Gazette* and a state-wide essay competition. A national television poster competition for children was conducted by the ABC.

### Exhibitions and Displays

A heavy demand was made during the year on the Department's resources of display material:

#### *Captain Cook Bicentenary Celebrations*

Display in Parliament House.

The Department participated in this exhibition with a portable display featuring the development of public health services in New South Wales.

#### *Royal Easter Show, 20th to 31st March, 1970*

Emphasis was given to the subject of drugs and the adolescent and smoking and health.

#### *Safety Convention, University of N.S.W., August, 1970*

The division co-operated with the Division of Occupational Health in providing a display at this convention.

*Careers Exhibition, 31st August to 4th September, 1970*

A display was entered in the above exhibition in the lower Town Hall, Sydney. Double Space was taken by the Department again on this occasion and the exhibit shared with the Hospitals Commission featured a special display on nursing education.

*Waratah Spring Festival, 10th October, 1970*

For the eighth occasion the Department entered a float in the pageant. The theme for 1970 was "Health, the key to Happiness".

*Health Week 19th to 23rd October, 1970*

A national poster exhibition was held at Roselands, Wiley Park. Lectures and demonstrations on nutrition, ergonomics, and first-aid were also arranged. Selected health films were screened daily at the Commonwealth Centre, Chifley Square.

*Old People's Week, 26th to 29th October, 1970*

A departmental exhibition was arranged in the lower Town Hall, Sydney during "Old People's Week". This featured the correct methods of supporting and lifting aged people.

*Country Shows*

Portable exhibition material was made available for the North Coast Health District for a display at Lismore during October on the subject of immunization.

**Public Relations**

Regular contact was maintained with press, radio, and television agencies and with health, education, and welfare agencies. Special publicity services were provided for various official functions during the year. These included graduation ceremonies for nurses at psychiatric hospitals, a "Cervical Cancer Symposium" on 13th November, 1970, and the Sir Philip Baxter Award on Air Pollution on 2nd October, 1970.

**MEDICAL EXAMINATION CENTRE**

*Director:* Dr J. M. ORR

*Location:* 86-88 George Street North, Sydney

**ESTABLISHMENT**

Director  
Senior Medical Officer  
5 Medical Officers  
4 Nursing Sisters  
2 Clerical Officers  
2 Shorthandwriter Typists  
8 Office Assistants  
2 Clerical Assistants  
4 Visiting Psychiatrists, part-time  
1 Visiting Cardiologist, part-time

**FUNCTIONS**

The functions of the centre have continued to expand and during the past 12 months the centre commenced assessments for the Local Government Superannuation Board when consultation is required by that Authority. Service is still provided to eighty-two Public Service and allied service departments and Police Medical Boards are arranged.

**MEDICAL EXAMINATIONS****Teachers and Trainee Teachers**

The following examinations have been carried out at the Medical Examination Centre:

	1969	1970
Full Medical Examination of Teachers College Entrants ..	203	222
Medical examination to determine fitness for permanent appointment and admission to the State Superannuation Fund ..	1,703	1,587
Examination to determine fitness for employment as temporary or casual teachers .. .. .	123	8
Sick leave and fitness to continue examinations .. .. .	136	165
Review examinations and re-examinations .. .. .	58	75
Psychiatric Examinations .. .. .	684	643
Cardiologist Examinations .. .. .	82	126
	<hr/> 2,989	<hr/> 2,826

The results of the following examinations were also assessed at this Centre.

	1969	1970
Students seeking entry to Teachers College .. .. .	4,304	3,611
Students graduating from Teachers College .. .. .	2,876	2,507
	<u>7,180</u>	<u>6,118</u>

The centre also arranged for the following examinations of teachers to be carried out in country areas, interstate or overseas and the results then assessed.

	1969	1970
Examinations for permanent appointment and admission to the State Superannuation Fund .. .. .	556	795
Examination of applicants for employment as temporary teachers	21	365
Sick leave and fitness to continue examinations .. .. .	56	122
Other examinations including X-ray reviews .. .. .	629	731
	<u>1,262</u>	<u>2,013</u>

During the year, fifty-eight teachers were retired on medical grounds (fifty-four in 1969). Of these twenty-two (38 per cent) were retired for psychiatric reasons (19—35 per cent in 1969) and the remainder for other medical disorders.

The age distribution of these retirements is as follows:

	1969	1970
Under 30 years .. .. .	4	6
30 to 39 years .. .. .	1	5
40 to 49 years .. .. .	11	9
50 to 59 years .. .. .	35	36
60 years and over .. .. .	3	2
	<u>54</u>	<u>58</u>

The causes of retirement under the age of 40 years were as follows:

Age	Sex	Medical condition
24 .. .. .	F. .. .	Manic Depressive Psychosis.
25 .. .. .	F. .. .	Schizo affective Psychosis.
25 .. .. .	F. .. .	Ununited fracture of femur.
25 .. .. .	F. .. .	Sequelae of motor accident.
27 .. .. .	F. .. .	Anxiety depressive reaction and Diplopia.
28 .. .. .	F. .. .	Severe Bronchial asthma.
30 .. .. .	F. .. .	Sequelae of head injury.
32 .. .. .	F. .. .	Post Encephalitic Syndrome.
34 .. .. .	F. .. .	Schizophrenic reaction.
36 .. .. .	F. .. .	Lumbar disc lesion.
37 .. .. .	F. .. .	Sequelae of head injury.

#### Public Service and Allied Services

The following examinations were carried out at the Medical Examination Centre.

	1969	1970
Medical examination to determine fitness for permanent appointment and admission to the State Superannuation Fund ..	5,572	5,680
Examination for fitness to continue in the service .. .. .	203	221
Re-examinations .. .. .	149	200
Special examinations including fitness to resume following retirement .. .. .	280	117
Cardiologist examinations .. .. .	..	245
Police Medical Boards .. .. .	..	30
Psychiatric examinations .. .. .	385	364
	<u>6,589</u>	<u>6,857</u>

The centre also arranged the following examinations in country areas, interstate, and overseas and the results were then assessed.

	1969	1970
Examinations for permanent appointment and admission to the State Superannuation Fund .. .. .	1,718	1,896
Examinations for Fitness to continue in the Service and Fitness to resume duty following retirement .. .. .	168	405
Special Examinations and X-ray reviews .. .. .	2,054	2,148
	<u>3,940</u>	<u>4,449</u>

During the year 148 employees in this group were retired on medical grounds (134 in 1969). Of these 28 (19 per cent) were retired for psychiatric reasons (25—19 per cent in 1969).

The age distribution of these retirements was as follows:

	1969	1970
Under 30 years .. .. .	7	10
30 to 39 years .. .. .	11	12
40 to 49 years .. .. .	27	36
50 to 59 years .. .. .	73	74
60 and over .. .. .	16	16
	<u>134</u>	<u>148</u>

The causes of retirement under the age of 40 were as follows:

Age	Sex	Medical condition
19 .. ..	F. ..	Quadruplegia.
20 .. ..	M. ..	Aortic and Mitral Incompetence and Congestive Cardiac failure.
20 .. ..	F. ..	Sequelae of Motor Accident.
21 .. ..	F. ..	Psychotic illness.
22 .. ..	F. ..	Carcinoma of Thyroid Gland.
24 .. ..	M. ..	Diabetes.
25 .. ..	M. ..	Anxiety state.
26 .. ..	M. ..	Paraplegia.
28 .. ..	F. ..	Carpal Tunnel Syndrome.
29 .. ..	F. ..	Bronchiectasis.
30 .. ..	M. ..	Injuries in motor cycle accident.
31 .. ..	M. ..	Anxiety state.
31 .. ..	F. ..	Regressive hysterical reaction.
33 .. ..	M. ..	Chronic Myeloid Leukemia.
34 .. ..	M. ..	Chronic Pulmonary Disease.
34 .. ..	M. ..	Duodenal Ulcer and Pyloric Stenosis.
34 .. ..	M. ..	Schizophrenic reaction.
34 .. ..	M. ..	Retinitis Pigmentosa.
34 .. ..	M. ..	Cranial Nerve Palsy following Intracranial Disease.
34 .. ..	M. ..	Schizophrenia.
38 .. ..	F. ..	Carcinoma of Breast with Metastases.
39 .. ..	M. ..	Chronic back strain.

Other assessments were carried out as follows:

	1969	1970
Examination of Returned Servicemen for travel concessions ..	2,781	3,046
Medical assessments for Metropolitan Water, Sewerage and Drainage Board, Electricity Commission, State and Psychiatric Hospitals .. .. .	1,061	1,100
Ophthalmic Surgeon examinations and Aurist examinations ..	1,375	1,735

	1969	1970
Vaccinations .. .. .	341	330
Electrocardiographs .. .. .	309	307
Audiograms .. .. .	277	393
Sick leave certificates for non-pathological conditions .. .. .	557	529
Assessments for Local Government Superannuation Board .. .. .	..	304
	<hr/> 6,701	<hr/> 7,744

#### First-aid Centre, State Office Block

During this year a total of 1,894 attendances were recorded at the First-aid Centre in the State Office Block (2,134 in 1969). Of these 424 were due to accidents at work. The 1,894 patients comprised 1,016 males and 878 females.

The First-aid centre is now expanding its activities into the field of occupational health and should in the future provide an even more valuable asset in the State Office Block.

#### COMMENT

In 1970, 2,262 candidates failed to attend for their appointment for examination (2,390 in 1969). Broken appointments are still a problem in the efficient management of the centre and are largely responsible for the waiting time for examinations.

### POISONS BRANCH

*Senior Pharmacist:* Mr R. M. DASH

*Location:* 9-13 Young Street, Sydney

#### STAFF

The staff of the Poisons Branch comprises

- 1 senior pharmacist
- 6 pharmacists
- 1 clerk
- 1 shorthand writer-typist
- 1 typist

#### FUNCTION

Legislation controlling the manufacture, distribution and use of drugs and poisons is administered by this branch. The principal legislation which the branch at present administers is the Poisons Act, 1966. This Act relates to the regulation, control and prohibition of the sale and use of poisons, restricted substances, drugs of addiction and certain dangerous drugs.

Legislation controlling the manufacture, distribution and advertising of goods for therapeutic use, and providing standards for such goods, is currently being prepared and will be administered by this branch following its enactment. This legislation will replace and supplement those provisions of the Pure Foods Act, 1908 that relate to drugs.

The branch also provides secretarial services for the Poisons Advisory Committee, its sub-committees and the Medical Committee established under section 30 of the Poisons Act, 1966.

#### ACTIVITIES

Implementation of poisons and drug legislation is undertaken as far as possible through routine inspection of premises where these substances are manufactured, stored and sold, with discussion with management and supervisory personnel on problems that have arisen. Supervision of licit channels of drug distribution to minimise the abuse of drugs has continued to receive priority. A number of special projects aimed at improving security over drugs of addiction in warehouses, pharmacies and hospitals have reduced the time available for routine inspections, however, and there remains an appreciable number of pharmacies and hospitals in the State that have not yet been visited by branch staff.

In May, 1970, the co-operation of the Police Crime Prevention Section was sought to advise licensed manufacturers and wholesale distributors of drugs of addiction on security to protect their stocks of these drugs. This followed a significant increase in reported cases of breaking and entering warehouses, pharmacies, doctors' cars and surgeries in search of drugs of addiction. Implementation of these recommendations was subsequently made a condition of renewal of the drug license.

At the same time, the Poisons Advisory Committee, with the assistance of the Police Crime Prevention Section, prepared a specification for a metal cabinet for storage of drugs in retail and hospital pharmacies. It is anticipated that this specification will be the basis for a regulation requiring improved security over drugs of addiction in retail and hospital pharmacies during 1971.

In January, 1970, controls over prescribing of amphetamine, dexamphetamine, methylamphetamine and phenmetrazine were introduced, as a result of concern over the incidence and effects of abuse of these substances. It was felt that strict controls were possible with these substances when expert advice indicated that there are very few conditions in which these substances are of substantial value, and fewer still where they are the drugs of choice. As a result of these controls, the prescribing of amphetamine-like substances have diminished dramatically, and with it the availability of those substances for abuse purposes. Stocks held by manufacturers and wholesalers at the end of the period under review were somewhat less than the quantity held a year previously, and it is estimated that stocks held by pharmacies have been reduced by an even greater margin.

A disturbing feature of the year has been an apparent increase in the number of professional people becoming addicted. Addiction to opiates in particular is a hazard which all people handling these drugs must be aware of and take care to avoid. Access to drugs is a significant factor in the incidence of addiction among medical and allied personnel, and as far as possible the action taken in such cases has been aimed at eliminating this freedom of access by withdrawal of the authority to prescribe and have possession of drugs of addiction, so that the chance of successful treatment and rehabilitation is improved.

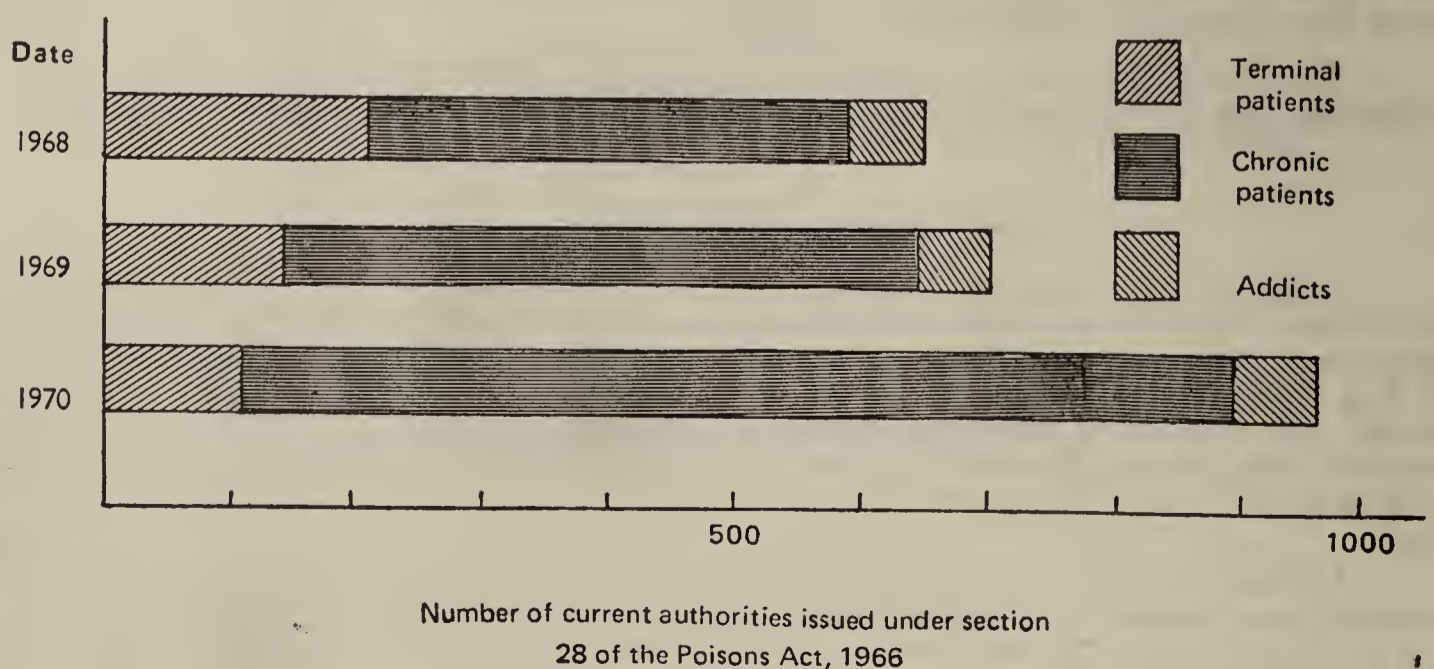
Section 28 of the Poisons Act requires a medical practitioner to obtain the authority of the Director-General to prescribe a drug of addiction for a person who is, in the prescriber's opinion, an addict, or to prescribe a drug of addiction continuously for more than 2 months for the treatment of any other person. This provision has now been in operation for more than 3 years, and appears to be fulfilling its intended function of providing statistics on the incidence of addiction, particularly in the case of addicts under medical control.

Persons in respect of whom authorities to prescribe drugs of addiction have been issued have been divided into three classifications for statistical purposes. These classifications are:

- (a) patients with terminal illnesses;
- (b) patients requiring continuous use of drugs of addiction for an organic illness;
- (c) addicts.

Persons classified as addicts may not necessarily recognise themselves as such, and often do not constitute a criminal or social problem. The Medical Committee established under section 30 of the Poisons Act, 1966, has been of considerable help in classifying persons for whom authority to prescribe drugs of addiction has been sought.

At the end of 1970, 960 authorities to prescribe drugs of addiction were in force following applications made under section 28 of the Poisons Act. This figure includes authorities to prescribe amphetamines, for which an authority was not required in previous years. The following graph shows how this figure was made up, and gives a comparison with the figures obtained from the first and second year of operation of this provision, using the classification mentioned above.



Although the number of addicts for whom an authority has been given has progressively increased, this is not apparent from the foregoing graph. Much of the increase has been due to the use of methadone withdrawal in an institutional setting for addicts who had obtained their drug supplies illegally. Methadone is used in this way for a limited period only, and few authorities to prescribe for addicts are current at any given time. The figure for 1970 does, however, include authorities for treatment of a number of addicts who have been admitted to an experimental "Methadone Blockade" programme.

A system of computer monitoring of wholesale transactions in drugs of addiction was developed and instituted during the period under review. This system, which is a venture jointly operated by Commonwealth and State Health Departments, still requires further development of the computer programme, but when fully instituted will be a valuable aid in supervising distribution and use of drugs of addiction. Some useful information to assist special investigations was obtained during the year, but the full benefit of the system has yet to be felt.

During the first 9 months of the year, the branch continued to co-ordinate the provision of speakers and discussion group leaders to fulfil requests received by the Department from church, parents', social and other community organizations. This activity has now been taken over by a special branch in the Division of Health Education, although the Poisons Branch continues to provide speakers and discussion group leaders upon request from the Division of Health Education. Assistance has also been given in the development of resource material for use in drug education programmes.

As the inspection programme has progressed, there has been an increase in the number of enquiries received in the branch office for assistance or advice in dealing with problems involving drugs and poisons, and an increase in spontaneous reporting of incidents indicating possible abuse of drugs. This relationship with people involved in the production and distribution of drugs and poisons is welcomed, but it has also meant that less time has been available for the inspection programme. Nevertheless, efforts are being made to maintain routine inspections as the basis of the branch's activities, so that problems can be remedied at an early stage wherever possible.

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PREVENTIVE MEDICINE

BUREAU OF MATERNAL AND CHILD HEALTH

Director: A. DOUGLAS, F.A.C.M.A., LL.B., M.B., Ch.B., D.P.H., D.T.M. & H.

Location: 9-13 Young Street, Sydney

STAFF

- 1 Nursing Supervisor
- 1 Sister-in-Charge In-Service Training
- 1 Assistant In-Service Training
- 1 Administrative Officer

ADMINISTRATION

With the appointment of a Bureau Supervisor of Nursing early in 1970 further integration of Maternal and Infant Care and Child Health nursing services was possible. Joint meetings of Baby Health Centre sisters and child sisters were begun in all Child Health Centres in the metropolitan area and the Director and Supervisor of Nursing attended these meetings, as well as combined nurses conferences in health districts during the year. Approval was given to the re-organization of the Central Medical Administration of the bureau in two geographic sub-divisions, viz., country and metropolitan.

CHILD HEALTH CENTRES

Child Health Centre boundaries have been altered to coincide with local government boundaries and as far as possible with the boundaries for psychiatric services, Education Department, Child Welfare Department and the proposed boundaries for the decentralization of hospital services.

A draft of the *Manual for Guidance of Senior Medical Officers* in Child Health Centres was completed and distributed to all Senior Medical Officers in Child Health Centres for comment.

The Queenscliff Health Centre is now well advanced and the building is expected to be ready for occupation in mid 1971. Approval has been given to set up an integrated maternal and child health service for a small geographic area of Warringah Shire as a pilot study before the Queenscliff Child Health Centre is opened.

ABORIGINAL HEALTH

Under the Commonwealth scheme for financing programmes for Aboriginal health four positions of community nurse have been established at Bourke, Moree, Wentworth, Wilcannia and two further positions in the Sydney metropolitan area. Four of these positions are now filled.

A programme for the training of Aboriginal girls as nurse aides has been set up and finance has been provided to train twelve girls.

IN-SERVICE TRAINING COURSE FOR COMMUNITY HEALTH NURSES

Three programmes of In-Service training for community health nurses were conducted in 1970. The two full time programmes comprised nurses from:

Agency	Pre 1970	1970	Total
Maternal and Infant Care .. .. .	94	12	106
Child Health .. .. .	98	2	100
Geriatrics .. .. .	3	..	3
Psychiatric Services .. .. .	25	9	34
Mentally Handicapped .. .. .	4	..	4
Sydney Home Nursing Service .. .. .	15	4	19
Commonwealth Health Department .. .. .	1	..	1
Division of Tuberculosis .. .. .	8	..	8
Epidemiology Section .. .. .	2	..	2
Anti-Tuberculosis Association .. .. .	4	..	4
Private Hospitals .. .. .	1	1	2
Community Health Nurse (Bureau of Maternal and Child Health) .. .. .	..	1	1
Total .. .. .	255	29	284
The Refresher Programme comprised Nurses from:			
Bureau of Maternal and Child Health .. .. .	..	1	1
Metropolitan Baby Health Centre Sisters .. .. .	..	4	4
Metropolitan Child Health Centre Sisters .. .. .	..	10	10
Total .. .. .	..	15	15

The extension of the programme to 1 of 12 weeks duration allowed more time for formal revision session by course tutors. This enabled consolidation of ideas presented in lectures and discussion and clarification or interpretation of subject matter presented. More time was available to students for preparation of written assignment, case studies and individual revision for examination.

The refresher programme of 4 weeks provided revision and discussion relating to basic subjects such as Child Growth and Development, Community Health and Preventive Medicine, in addition to disseminating current clinical information for nurses who had undertaken part time In-Service training courses, 8, 9 and 10 years ago.

## SECTION OF SPECIAL SERVICES

*Assistant Director:* W. HEMPHILL M.B., B.S., D.C.H.

*Location:* 9-13 Young Street, Sydney

### STAFF

- 1 Assistant Director.
- 1 Senior Psychiatrist.
- 3 Senior Medical Officers.
- 1 Medical Officer.
- 1 Principal Clinical Psychologist.
- 1 Senior Social Worker.
- 1 Senior Speech Therapist.
- 1 Clinical Psychologist.
- 3 Social Workers.

During 1970 the diagnostic clinic for atypical children for children from country areas and those not catered for by Child Health Centres in the Sydney area was continued. One hundred and ninety-five new cases were seen and sixty-six reviewed. The trend, noticed in the previous year, of referral of children for medical investigation of reading difficulty continued. The case-load included children with behaviour problems, various degrees of mental retardation, significant vision or hearing defects and speech defects. Staff from the section established peripheral clinics at Mt Druitt, Blacktown, Lalor Park, Manly and Brookvale—these areas do not as yet have a Child Health Centre and the peripheral clinics enabled children and parents to be seen close to their homes, thus minimizing travelling for the patients.

Medical officers attended 405 sessions during the year in 13 Baby Health Centres in the Sydney metropolitan area. These sessions are conducted as Well Baby clinics and are referral clinics to which infants and children may be referred for problems in feeding, sleeping, behaviour or other problems in development. Referrals are made by general practitioners and public health nurses.

A visit was made to Broken Hill by a diagnostic team of paediatrician, clinical psychologist, social worker and speech therapist. In 5 working days the team examined thirty-four children of whom twenty-one were school age and thirteen were pre-school children. Referrals came from general practitioners, staff of the Broken Hill Hospital, and the Department of Education. Diagnoses included speech and language defects, learning difficulty, behaviour disorders, intellectual handicap and various combinations of these.

A visit was made to Albury by a paediatrician, a clinical psychologist and a social worker to offer consultative service to general practitioners, parents and Department of Education officers. Cases referred included failure to progress in education, behaviour disorders, disorders of speech, and intellectual handicap.

### SPEECH CLINICS

During the year dual interviews by speech therapists (most frequently the senior speech therapist) and an itinerant senior medical officer visiting some of the Child Health Centres, were continued regularly.

Visits were made to the speech clinics at Bexley, Cabramatta, Eastern Suburbs and Ryde Child Health Centres and to Blacktown Baby Health Centre.

A total of 60 visits was made to evaluate 187 children, including 126 boys and 61 girls: 98 children, 74 boys and 24 girls, previously assessed were reviewed. In addition, 60 children (40 boys and 20 girls) were seen at Head Office in conjunction with the senior speech therapist. Here also, 31 children, 24 boys and 7 girls, were reviewed after previous assessment.

Referrals to the clinics were made by paediatricians, general practitioners, school medical officers and sisters, and education authorities.

Personal application to the Child Health Centres was made by a number of parents.

School teachers were kept informed of the number of children attending the clinics and they were advised on the management of the speech defects in the school situation. There appears to be a great need for this instruction which, it is considered should be increased.

Liaison was maintained also with teachers in the pre-school kindergartens attended by children with speech or language problems.

Several children were referred to the Division of Guidance and Adjustment for psychometric testing, evaluation of specific learning difficulties and advice on these. Other children are to be referred later after observation and/or maturation. A number of children had been assessed at the Education Clinic before referral to the speech clinics.

The opinion of the child guidance teams was requested for a number of children with apparent emotional disturbances and dual therapy was carried out in some of these cases.

The reports of the clinical psychologists in the health centres, who carried out language evaluations were found to be most helpful in directing therapy and advice to parents and teachers.

The children with hearing impairment who were seen were already known to the Commonwealth Acoustic Laboratories. One child was referred to a hearing clinic for further advice.

A number of children were referred for neurological investigation and others for consultant opinion on palatal function.

Of the 247 children seen with speech problems, 130 had articulation disorders and in a number of these, there was dysphasic and dyspraxic elements; 40 showed slow development of speech with evidence in some of specific difficulties and in others of intellectual handicap; 26 had dual speech defects; 23 were stammerers; 11 had sigmatism; 5 children had defective speech associated with hearing impairment; 4 were dyslexic with speech within normal limits; 3 were classified at the initial interview as aphasic; 2 had residual articulation defects after surgical repair of cleft palates; there was one child each with dysphonia, rhotacism and elective mutism.

Thirty-seven children were accepted for therapy and one hundred and fifty-seven for follow-up at intervals.

A further thirty-five children were to be seen for follow-up only if the parents remained worried after the initial interview and discussion of the speech defect. Eighteen children are to be seen for review after a period of observation.

As previously noted facilities and team work within the Child Health Centres made observation, investigation, diagnosis and treatment, including parent counselling, far more effective.

In addition, the medical officer made fifteen visits to Far West Children's Home, Manly, in association with the Panel for Investigation of Speech Defects.

Seventy-eight children were assessed. Of these, forty-five had articulation disorders; ten were showing slow speech development; three had dual speech defects; and many of these three groups showed evidence of specific deficits; eight were diagnosed at the initial assessment as being aphasic; six had articulation defects associated with hearing impairment; three had dyslexia with speech within normal limits; and there was one child each with stammer, dysphonia and traumatic dysarthria.

Most of these children were accepted for therapy; the remainder will be reviewed and then treated as indicated.

## SPECIAL HOMES

"Dalwood" Health Home, Seaforth, was visited on four occasions during the year.

Eleven full medical examinations and fourteen reviews were made. No parents were available for interview.

As previously, at each visit, discussions were held with the nursing staff and secretary of the home when advice was offered regarding the children's management.

In addition a number of telephone discussions were held about the children's problems.

Contact was also made with school counsellors and teachers regarding some learning and behaviour difficulties.

## SOCIAL WORK

Following the outstanding success of the appointment of a social worker to work with infants and pre-school children and their parents in the Manly-Warringah area two new positions for social workers with similar duties were created at the end of 1970. The new social worker positions were designated for the Blacktown and Sutherland areas which are the two remaining zones in the Sydney area which are not as yet provided with a complete Child Health Centre service.

### IN-SERVICE TRAINING OF MEDICAL OFFICERS

In January 1970 a 4-day course of In-service training was conducted at the Evans Jones Theatre, Broughton Hall. All medical officers employed in the Bureau of Maternal and Child Health and some doctors from the Division of Establishments and from other States participated. Subjects discussed were:

Theory of Counselling, Genetics, School Phobia, Abnormal Growth, The Dysphasias, The Epilepsies, Dyslexia and Biochemistry and Mental Retardation.

The course has been accepted as an annual event and apart from being informative and stimulating it is regarded as a valuable means of communication on both a professional and social level.

### 1970 ANNUAL REPORT FIGURES, SECTION OF SPECIAL SERVICES

<i>Head Office new cases</i>	<i>Head Office reviews</i>	<i>Total</i>
129	66	195

#### *Manly Baby Health Centre and Brookvale Speech Clinic*

New Cases other than speech .. .. .	64
Reviews other than speech .. .. .	34
Total ..	98
New Speech Cases .. .. .	29
Review Speech Cases .. .. .	11
Total ..	40
Grand Total .. ..	138

### SECTION OF SPECIAL SERVICES—WELL BABY CLINIC STATISTICS 1970

Well Baby Clinic	No. of Sessions	Attendances			Referred From		Referred To			
		New Cases	Review Cases	Total	Baby Health Centre	Other	Hospital	Child Health Centre	General Practitioner	Other
Balmain .. .. .	10	51	14	65	44	..	1	..	2	7
Chatswood .. .. .	43	99	112	211	49	23	4	5	16	1
Fairfield .. .. .	42	97	88	185	57	4	9	3	7	4
Five Dock .. .. .	9	25	8	33	19	6	1	1	..	6
Hornsby .. .. .	39	110	77	187	34	10	3	1	6	2
Kogarah .. .. .	45	72	84	156	100	14	6	1	4	6
Liverpool .. .. .	32	95	101	196	63	7	9	1	9	..
Narrabeen .. .. .	49	227	245	472	137	32	4	1	8	9
Newtown .. .. .	12	41	16	57	43	..	4	2	7	12
Paddington .. .. .	23	35	28	63	44	..	4	..	1	..
Parramatta .. .. .	38	85	82	167	120	16	9	8	8	..
Petersham .. .. .	24	78	55	133	85	1	7	2	2	..
Ryde .. .. .	39	105	90	195	120	2	1	2	9	2
Total .. .. .	405	1,120	1,000	2,120	915	115	62	27	79	49

## SECTION OF CHILD HEALTH

*Assistant Director:* J. R. F. BOGER, M.R.C.S., L.R.C.P., D.P.H., D.C.H.

*Location:* 9—13 Young Street, Sydney

### STAFF

- 12 Senior Medical Officers
- 12 Teachers College Medical Officers
- 4 Part-time Teachers College Medical Officers
- 45 Medical Officers
- 3 Trainee Psychiatrists
- 10 Psychiatrists
- 20 Psychologists
- 1 Sessional Psychologist
- 19 Social Workers
- 30 Speech Therapists
- 3 Part-time Speech Therapists
- 1 Part-time Ear, Nose and Throat Specialist
- 7 Sessional Ear, Nose and Throat Specialists
- 1 Senior Nursing Sister
- 92 Nursing Sisters (not including Sister, Broken Hill, Division of Tuberculosis, working part-time in schools)
- 4 Office Assistants
- 3 Stenographers
- 11 Typists
- 6 Part-time typists

### POLICY AND PROGRESS

From the 1st January, 1970, the supervision of the activities of this section in the Cabramatta, and Parramatta Child Health Centre areas, the Blacktown area, and the Camden and Campbelltown Shire areas was transferred to the office of the Medical Officer of Health, Western Metropolitan Health District.

That part of the metropolitan area remaining under the supervision of the office of the Assistant Director included the Manly-Warringah and Sutherland areas, and the child health centre areas of Bexley, Chatswood, Eastern Suburbs, Forest Lodge, Ryde and Yagoona.

Medical examination and immunization services to State wards in Child Welfare Department establishments and foster-homes in the metropolitan child health centre areas were continued this year.

Screening of vision and hearing of children in Child Welfare Department Homes and Aboriginal Welfare clinics was continued by two nursing sisters. Of the 3,909 children screened 395 children with hearing defects were found and 149 with visual defects.

Medical screening services to children in the pre-school age group at Well Baby clinics and pre-school kindergartens has continued to expand. 698 sessions were conducted at the fifteen Well Baby clinics staffed by this section. The number of examinations increased slightly from 3,787 to 3,995.

The number of pre-school kindergartens receiving regular medical supervision increased. In the State, 222 kindergartens and day nurseries including 5 day nurseries and 18 pre-school kindergartens previously serviced by the section of Maternal and Infant Care, received medical supervision. The number of children examined totalled 9,204 and 1,478 defects were found. Details regarding these defects are listed in tables XI and table XI(a).

Eight medical officers received training in pre-natal clinic techniques at the Royal Hospital for Women. Following this training, assistance was given to the Section of Maternal and Infant Care in pre-natal clinics and at Preparation for Parenthood classes. At the 4 pre-natal clinics staffed, 2,506 examinations were conducted in 244 sessions. Officers of the section participated in twenty-one of the Preparation for Parenthood sessions at 7 of the classes conducted by the Section of Maternal and Infant Care, and gave a total of 63 lectures. Instruction in hearing testing techniques was given to Baby Health Centre nurses by two nursing sisters from this section.

Though additional services have been undertaken in the metropolitan area by the section during the year, this has been possible only at the expense of the school medical screening programme. The total number of full and review medical examinations conducted in the State was reduced from 214,173 in 1969 to 198,616 this year. The main reduction occurred in the metropolitan area where only 105,248 full and review medical examinations were carried out compared with 125,384 the previous year.

The adoption of additional hearing screening procedures by field officers has been effective in reducing not only the total number of referrals to the section's hearing units for secondary screening, but has also reduced the number of unnecessary referrals. Three thousand, one hundred and ninety-one cases were referred to the hearing units compared with four thousand, nine hundred and thirty-seven in 1969. Of the children referred, only 10.5 per cent were found to have normal hearing compared with 17 per cent in 1969.

Diagnostic teams, consisting of a medical officer, clinical psychologist, social worker and speech therapist, paid visits to eight country centres this year. Visits were made to Bathurst, Coff's Harbour, Dubbo, Griffith, Lismore, Parkes, Tamworth, and Wagga Wagga to assess atypical children nominated through the Medical Officers of Health. Each team remained in the area for one week and a total of 287 children were assessed.

No new Child Health Centres were established throughout the year though construction on the Queenscliff Health Centre commenced during the year and it is expected that this centre will provide services to the Manly-Warringah area before the close of the 1970/71 fiscal year. The planning of the combined Psychiatric Day Hospital and Child Health Centre at Blacktown has proceeded and construction of this complex is scheduled to begin early in 1971.

The examination of children under the shire scheme has continued throughout the State.

### Medical Examinations of School Children

TABLE I

New South Wales	1968	1969	1970
School Population .. .. .	976,859	998,182	1,008,190
Number of pupils fully examined ..	113,824	101,624	88,661

The above figures do not include examinations in Secondary Schools. See also table IV *et seq.* and reports of medical officers of health.

TABLE II—Number of pupils in primary schools in the metropolitan area, remainder of State, and New South Wales by grades, who were fully examined or whose cases were reviewed in 1970

Full examinations	Metropolitan Area	Remainder of State	N.S.W.
Kindergarten .. .. .	21,367	19,783	41,150
Grade 1 .. .. .	11,173	9,228	20,401
Grade 2 .. .. .	5,295	4,850	10,145
Total .. .. .	37,835	33,861	71,696
Total of all grades .. .. .	45,058	43,603	88,661
Review Examinations—			
Grade 4 .. .. .	25,342	19,439	44,781
Total of all grades .. .. .	60,190	49,765	109,955
Grand Total .. .. .	105,248	93,368	198,616

TABLE III—Number of pupils who were fully examined, or whose cases were reviewed in primary schools and school populations in the metropolitan area, in the remainder of the State, and in New South Wales, 1970

Primary Schools	Metropolitan Area	Percentage	Remainder of State	Percentage	New South Wales	Percentage
Population—						
Departmental .. .. .	288,821	..	224,935	..	513,756	..
Non-departmental .. .. .	82,054	..	54,037	..	136,091	..
Total .. .. .	370,875	..	278,972	..	649,847	..
Examinations—						
Full .. .. .	45,058	12.15	43,603	15.63	88,661	12.10
Review .. .. .	60,190	16.23	49,765	17.84	109,955	16.92

TABLE IV—Percentage of defects of notifiable standard found in pupils fully examined in N.S.W. Primary Schools

	Primary Schools	
	Boys	Girls
Number examined . . . . .	45,901	42,760
Defects—		Percentage with Defect
Vision*	5.03	5.24
Number with glasses . . . . .	0.52	0.48
Squint . . . . .	1.10	1.28
Hearing . . . . .	2.97	2.84
Nose and throat . . . . .	2.11	2.01
Teeth . . . . .	4.96	5.11
Skin . . . . .	2.85	3.03
Thyroid . . . . .	0.04	0.04
Heart and Circulation . . . . .	0.69	0.66
Asthma . . . . .	1.91	1.22
Other lung defects . . . . .	2.31	1.93
Development (Hernia) . . . . .	0.61	0.23
Orthopaedic . . . . .	1.79	1.20
Nervous system . . . . .	0.48	0.39
Psychological . . . . .	1.65	0.98
Speech . . . . .	2.00	1.75

\* Includes with and without glasses

OFFICE OF THE ASSISTANT DIRECTOR

This office in 1970, supervised work done in the Manly-Warringah Shire, Sutherland Shire, various child guidance clinics in conjunction with the Department of Child Welfare and Social Welfare and clinics conducted at Head Office. In all a total of 22,312 pupils attending primary and high schools were fully examined or reviewed. The medical officers carried out 2,112 parent interviews and the nursing sisters made 1,910 follow-up interviews and 2,755 home visits and special interviews.

At the request of the Department of Child Welfare and Social Welfare, the Far West Children's Health Scheme, and Stewart House Preventorium, special medical examinations were arranged, and a total of 1,120 were carried out.

Clinics continued to be held at Manly Baby Health Centre, Brookvale Baby Health Centre and Avalon Baby Health Centre for those cases where special consultation was required; 282 cases were seen. Interviews were also held with parents, teachers and counsellors. Of the cases seen, 12 were referred to Child Guidance clinics, 20 to speech therapy clinics, 12 to a hearing unit, 22 to the Division of Guidance and Adjustment and 16 to medical practitioners and hospitals.

Homes and schools for atypical children and special units not included in the metropolitan child health centre areas, were visited regularly. These schools are controlled by the Department of Education, Department of Child Welfare and Social Welfare, Subnormal Children's Welfare Association and the Society for Crippled Children. In 1970, 477 examinations were carried out and 71 defects were notified.

The number of pre-school kindergartens visited was 33; a total of 1,896 examinations was made and 793 defects were notified.

Well Baby Clinics were conducted by medical officers at Caringbah, Sutherland, Avalon and Manly and relief service was given at others. A medical officer in the Sutherland Shire gave lectures for Preparation for Motherhood classes.

At the hearing unit twenty-six sessions were held—twenty-one at Head Office and five at Eastern Suburbs Child Health Centre—and one of three ear, nose and throat specialists attended each. Two children had hearing aids recommended and one child was recommended for O.D. class.

The Child Guidance Clinics at Brisbane Street, Yasmar and Minda were administered from this office, a total of 2,191 cases were seen. The clinics at "Yasmar" and "Minda" are in existence for the benefit of the Children's Courts.

The speech therapy clinics at Brookvale, Head Office and the Child Welfare establishments had 4,129 attendances.

The case load of the Asthma Clinic has diminished further this year.

The special follow-up visits in Sutherland Shire and Manly-Warringah Shire were continued by nursing sisters. These visits are for the care of children with emotional or physical problems. A total of 36 parent interviews, 1,137 interviews with children, 639 special interviews, 629 home visits and 25 special escorts were carried out.

The health of children attending National Fitness Camps at Myuna Bay, Point Wolstonecroft, Broken Bay and Narrabeen, was supervised by nursing sisters from the bureau. The duties include attendance on cases of illness or injury, instruction in first-aid and other health topics, and supervision of camp hygiene.

Nursing sisters from this office undertook duties at the Immunization Centre (52 days) and Far West Summer Camp (1 day). Two nursing sisters were engaged for 298 days assisting with the conducting of a height/weight survey. Relief was given also to the National Fitness Camps (53 days), and the Government Insurance Office (19 days).

### **Bexley Child Health Centre**

Routine medical examinations were carried out at sixty-eight of the eighty-one schools covered by the centre. Staff shortages at times were acute and the centre was consistently understaffed. Staff was also loaned to Head Office, to Yasmar and to Minda.

Nine (9) special schools or units in the centre area were visited during the year and the routine medical examinations and immunization service was continued at Myee—Child Welfare Department Receiving Home, and for all wards in foster homes in the area.

The weekly Hurstville Well Baby Clinic and thirteen sessions at Campsie Well Baby Clinic were conducted by centre staff. Two hundred and eighty-two (282) children were examined and sixty-seven defects were notified.

Visits were made to 22 pre-school kindergartens and 736 examinations were carried out—11 defects were notified.

Medical officer appointments at the centre numbered 539, including 407 new cases.

The hearing unit investigated 254 cases (including 99 new cases) in 54 sessions.

The total case load of the Child Guidance Clinic was 442, with 355 closed cases. The majority of children in these cases were aged 6-11 years, a general trend in all clinics.

Three (3) speech therapy clinics were run at which there were 2,096 individual attendances. Staff shortage has created a waiting time of 4-5 months for initial interviews.

Details of work carried out are given in tables V to XXIII.

### **Chatswood Child Health Centre**

The school population for 1970 was approximately the same as 1969, but there was a small drop in the number of children examined fully or reviewed, with a corresponding increase in the number of examinations of pre-school children. Of the 132 schools in the area, 3 only were not examined due to lack of time or accommodation.

In addition to follow-up visits to schools, nurses made 164 special visits to schools at the request of speech therapists or the child guidance clinic. Thirteen special schools or units were medically supervised during the year.

The number of pre-school kindergartens visited was 32: 1,563 examinations were conducted and 79 defects notified.

Medical officer appointments at the centre totalled 1,273 including 668 new cases.

The hearing unit conducted 59 sessions and 401 children were investigated.

Three (3) speech therapy clinics had a total of 2,477 individual attendances.

The total case load of the Child Guidance Clinic was 665 of which 292 were new cases.

A Well Baby clinic was conducted at Turramurra weekly for the whole year, and at Lane Cove for 5 months.

A pre-natal clinic was conducted weekly at Manly Baby Health Centre.

Conferences were held regularly by the Child Guidance staff, and by them with speech therapists: conferences for all staff were held monthly.

As in previous years talks by staff were given to mothers' clubs, Parents and Citizens' Associations and student groups.

A diagnostic team visited Coff's Harbour for 1 week to assess atypical children referred from the area, and to counsel parents and to arrange suitable school placement or further investigation if indicated.

In November, the roof of the Child Health Centre was severely damaged by the collapse, on two occasions, of a brick wall under construction next door.

In consequence, the interior of the building was flooded several times causing interior damage. A disruption of some essential services resulted. Eventually alternative accommodation was arranged at various Baby Health Centres for medical officers and speech therapists, while the Child Guidance staff was accommodated at the North Ryde Psychiatric Centre.

Repairs are being effected, but it is not anticipated that the centre will be fully habitable before March, 1971.

Details of work carried out are given in tables V to XXIII.

#### Eastern Suburbs Child Health Centre

The work of the centre was somewhat curtailed by medical and nursing staff losses. of the 111 schools in the area, 102 were screened and 8 special schools or units were visited. Three hundred and fifty (350) children in 8 pre-school kindergartens were examined and 51 defects were found.

Well Baby Clinics at Randwick and Surry Hills were again staffed on a weekly basis and the Medical Officer-in-Charge attended Preparation for Motherhood classes at Randwick.

The medical officer appointments at the centre increased to 964, with 555 new cases.

The hearing unit had 50 sessions and investigated 304 cases.

There was more intensive involvement in the Brisbane Street Child Guidance Clinic by the Medical Officer-in-Charge. The Centre Child Guidance Clinic had a case load of 476 with 320 new cases.

The two speech therapy clinics had a total of 1,138 individual attendances.

Lectures were given to high school and primary school teachers and to students from Sydney Teachers College, Orthoptists Training School and to trainee school counsellors, as well as to parent groups in schools.

Weekly case conferences were held and monthly meetings were addressed by guest speakers.

The special clinic for obese children ran forty-four sessions with much success.

Immunization of state wards continued involving twelve visits to Child Welfare Department homes.

A country diagnostic visit was made to Dubbo and forty-two families were seen.

Nurses participated in the establishment and functioning of a number of community mental health clinics in the centre area. Two nurses attended a 4 week In-Service training course.

Details of work carried out are in tables V to XXIII.

#### Forest Lodge Child Health Centre

There are ninety-nine schools in the centre's area and of these seventy-three were examined fully and one partially. The 1969 and 1970 kindergarten intake and reviews in 4th and 5th classes were done in fifteen schools which were not examined in 1969. The total school population increased, the greatest increase being in the infant grades. The percentage of non-English speaking migrants continues to be high and the turnover reached eighty per cent in one area.

The number of pre-school kindergartens visited increased from 21 to 27 and 1,042 examinations were made: 169 defects were notified.

Special examinations were carried out at "Little Brothers" (133) and Yasmar (12) and at 15 special schools and units.

Dulwich Hill Well Baby Clinic was staffed weekly until June, 1970.

Medical officers spent less time interviewing at the centre and did more counselling at school to avoid lengthy waiting lists. Centre appointments numbered 776, with 472 new cases.

There were 992 individual attendances at the Speech Therapy Clinic which was open 4 days per week. To curtail the waiting time at the clinic, the speech therapist also saw referred children at 18 schools and screened 161 children.

The hearing unit investigated 280 cases.

The Child Guidance Clinic had a reduced number of sessions because of staff depletion, and the total case load was 395. The staff took part in student supervision, In-service training, special school consultation, community programmes and meetings with hospital staff.

The Bridge Road School for emotionally disturbed children was increased to four classes adding a further load to the clinic. There continued to be a demand for night clinics and the value of these is still apparent.

Routine medical examinations and immunizations in the Child Welfare Department institutions accounted for more than 3 days each week of a medical officer's time and 1 day per week of a nurse's time. Skin tests were carried out on 269 children and 563 injections for diphtheria, tetanus and/or whooping cough were given, and 621 doses of sabin vaccine.

Regular staff meetings were held which were attended by school counsellors and visitors from other organizations.

A diagnostic team visited Tamworth and forty individual children were seen.

The restoration of the building continued throughout the year and in June, 200 members of the National Trust inspected the building.

Details of work carried out are given in tables V to XXIII.

### **Ryde Child Health Centre**

The number of departmental cars at the centre was increased from four to seven on a trial basis in the middle of the year. The result was a notable increase in the number of home visits and in the number of children interviewed in schools during follow-up by the sisters. The work output in all other areas was less than in 1969 due to the shortage of medical officer staff. Of ninety-two schools, sixty-six were fully screened and two partially. The number of special schools and units visited was eighteen, and examination and immunization programmes were conducted in four Child Welfare Department Establishments.

Of the 23 pre-school kindergartens, 13 were visited, 664 examinations were made and 59 defects notified.

The Well Baby Clinic at Gladesville was attended weekly.

The Child Guidance Clinic had a total case load of 418, with an almost equal number of children in the 6-11 years and 12 to 15 years age groups.

Medical officer appointments at the centre numbered 734, of which 515 were new cases.

The total individual attendances at the three speech therapy clinics was 2,788. Speech therapy students attended the clinic for three academic terms.

The hearing unit conducted 62 sessions and investigated 424 cases.

Lectures were given to private organizations, Mothers' Clubs, Parents and Citizens' Associations, Child Welfare Department trainee field officers, supervisors of the mentally handicapped, OA Teachers Association, Mothercraft nurses and trainee remedial teachers.

A diagnostic team visited Lismore towards the end of the year.

Details of work carried out are given in tables V to XXIII.

### Yagoona Child Health Centre

The centre served a school population of 43,072 in 87 schools, and medical examinations were completed fully in 78 and partly in 3.

The centre staff was depleted to a significant degree in all disciplines except that of clinical psychology. A relief medical service was provided at Minda, Yasmar and Albion Street Shelter.

Medical screening was done in 12 pre-school kindergartens for 319 children—9 defects were notified.

The Well Baby Clinics at Bankstown, Revesby and Yagoona were conducted on a weekly basis and 41 pre-natal clinic sessions were conducted at the Villawood Migrant Hostel.

Fourteen (14) special schools or units were visited during the year.

The medical officer appointments at the centre numbered 973, and of these 553 were new cases.

The total number of cases investigated by the hearing unit was 223 in 35 sessions.

The Child Guidance Clinic was able to maintain a 3 weeks only waiting time but the management of many cases needed modification because of the absence of a social worker. The total case load was 325.

Only children with significant defects were referred to the speech therapist by the senior medical officer thus enabling her to devote most of her time to treatment and thus avoiding building up a cumbersome waiting list. The total number of attendances at the speech therapy clinic was 1,956.

The hearing unit was conducted fortnightly by the senior medical officer for 10 months. In 35 sessions, 223 cases were investigated.

Twenty Health Education lectures were given to various parent and professional groups.

The members of the staff have met together three times a week for case discussion and conference.

A diagnostic survey team visited Parkes and 57 children were examined, and their parent(s) interviewed. A film screening and discussion evening was held for seventy teachers.

Details of work carried out is given in tables V to XXIII.

### “Minda” Remand Centre

During 1970 there was an increase of 16 per cent in the number of individual girls admitted and 11 per cent in the number of boys admitted over the 1969 figure. Procedures of examination were the same with the exception of the introduction of audiometry and a reduction in colposcopic examinations as the consultant gynaecologist was overseas.

A total of 1,083 examinations for girls and 1,040 for boys was carried out of which 1,937 were first admissions. The ages of these admissions are shown in the table.

TABLE FOR “MINDA” REMAND CENTRE

*Age Distribution of first admissions*

Age (years)	No. of Boys	No. of Girls
8	4	..
9	7	..
10	15	..
11	22	2
12	52	31
13	106	121
14	103	214
15	107	235
16	289	238
17	278	100
18	11	2

The relative incidence of V.D. among the girls showed a drop of 2.1 per cent on the previous year, the total number of girls investigated being 829 with 69 confirmed cases of gonorrhoea and none of syphilis. There were 3 cases of gonorrhoea among the boys.

The number of definite pregnancies was 58 and there was one incomplete miscarriage.

The total number of papanicolaou smears taken was 729 and one showed class V—positive. On punch biopsy, carcinoma in situ was diagnosed.

Among the girls there were found twenty-two gynaecological defects, sixty-six notifiable ocular defects, twenty-seven notifiable auditory defects, and thirty-nine other defects.

The only boys submitted for routine examination were those who had been committed to an institution or those for whom a physical and mental survey had been directed by the Court. Among these boys there were found forty-six notifiable ocular defects, forty-one notifiable auditory defects and ninety-seven other defects.

An article was published in the *Medical Journal of Australia* as a result of the trial carried out using ampicillin in the treatment of gonorrhoea.

Details relating to Minda Child Guidance Clinic are found in the tables V to XXIII.

### **Metropolitan Boys' Shelter and Yasmar Hostel**

The total number of boys examined was 1,575—758 at the Metropolitan Boys' Shelter and 817 at Yasmar Hostel. Ninety-five ocular defects of notifiable standard, 38 auditory defects and 95 other defects (excluding dental) were detected.

The film—"A quarter of a million teenagers" was shown 23 times to a total audience of 853 boys and girls at various Remand Centres.

Details relating to Yasmar Child Guidance Clinic are found in the tables V to XXIII.

### **Teacher Training Colleges—Metropolitan Area**

The training colleges in the metropolitan area are Sydney, Alexander Mackie and Balmain, with a total student population of 4,665. The medical officers conducted a total of 18 separate health education courses and supervised the health of the students and of staff.

There were 3,115 student consultations for medical and surgical first aid and 907 consultations for student counselling, while 374 students were immunized, mainly for tetanus. Staff consultations for first aid totalled 335.

Examinations for outgoing students for superannuation were conducted mainly by the medical examination centre, (650) and 60 were examined by the medical officer at Balmain Teachers College.

Cumulative assessment of students' progress increased the work of setting and marking papers. The medical officers were involved in the working party preparing general health curriculum for teachers colleges and the working party preparing teacher resource units.

Lectures were given in first-aid to trainee teachers at the Technical College and to Child Welfare officers.

Two medical officers from Sydney Teachers College attended the International Congress on Alcoholism and Drug Dependence.

The medical officer at Alexander Mackie Teachers College was a member of the Secondary Schools Committee in Health and Physical Education and of the ABC Schools Broadcast Committee in Health Education.

The medical officer at Balmain attended a drug education workshop during the year.

Details of work done are in tables XXV and XXVI.

TABLE V—EXAMINATIONS IN PRIMARY SCHOOLS AND HIGH SCHOOLS OFFICE OF THE ASSISTANT DIRECTOR AND ASSOCIATED CHILD HEALTH CENTRES

	Office of Assistant Director— Manly-Warringah, Sutherland	Bexley	Chatswood	Eastern Suburbs	Forest Lodge	Ryde	Yagoona	Total
Primary Schools—								
Full examinations by medical officers	4,918	3,188	5,359	4,832	5,322	3,235	4,836	31,690
Review examinations by medical officers and nurses (all grades including 4th grade)	8,728	5,647	8,288	6,489	5,810	6,972	7,114	49,048
Review examinations—4th grade only (mainly conducted by nurses)	778	2,429	4,501	2,365	1,881	2,735	3,385	18,074
.. .. Total	13,646	8,835	13,647	11,321	11,132	10,207	11,950	80,738
High Schools—								
Review Examinations—								
not referred to medical officer	8,079	6,489	8,218	6,244	4,725	9,109	6,864	49,728
referred to medical officer	587	400	204	1,299	741	768	538	4,537
Total	8,666	6,889	8,422	7,543	5,466	9,877	7,402	54,265
Interviews—								
Number of parent interviews (medical officer)	2,112	535	612	1,785	1,982	900	1,989	9,915
Follow-up interviews (nurses)	1,910	592	555	1,673	2,205	3,313	748	10,996
Home visits Special Home visits and interviews (nurses)	2,755	241	827	439	778	1,812	443	7,295

TABLE V (a)—EXAMINATIONS IN PRIMARY SCHOOLS AND HIGH SCHOOLS—HEALTH DISTRICTS

	Western Metropolitan				Newcastle		North Coast	North West	Western	Riverina	Broken Hill	South Coast	Total
	Camden Campbelltown Area	Cabramatta Child Health Centre	Parramatta Child Health Centre	Blacktown Area Centre	Child Health Centre	Rem. Health District							
Primary Schools— Full examination by Medical Officer Review examinations by Medical Officers and Nurses (all grades in- cluding 4th. gr.) .. .. Review examinations (4th grade only) (mainly conducted by nurses) ..	2,183	4,520	5,202	3,646	8,949	4,520	3,156	5,829	3,584	5,677	N.A.	9,705	56,971
	1,697	3,839	5,452	1,851	13,843	1,827	4,127	6,532	3,606	5,520	N.A.	12,613	60,907
	519	1,574	1,723	745	5,132	630	1,970	2,627	2,069	1,678	N.A.	4,814	23,481
	3,880	8,359	10,654	5,497	22,792	6,347	7,283	12,361	7,190	11,197	..	22,318	117,878
High Schools— Review examinations not referred to Medical Officer .. .. Referred to Medical Officer .. ..	N.A.	7,181	5,948	5,881	7,708	1,770	4,348	4,243	4,690	2,016	N.A.	8,671	52,456
	N.A.	1,310	564	696	373	125	369	158	139	1,289	731	1,072	6,826
	N.A.	8,491	6,512	6,577	8,081	1,895	4,717	4,401	4,829	3,305	731	9,743	59,282
Interviews— Number of parent interviews (medical officer) .. .. Follow-up interviews (nurses) .. .. Home visits, Special Home Visits and Interviews (nurses) .. ..	N.A.	1,360	2,613	1,002	1,756	265	54	7	214	977	272	2,890	11,410
	N.A.	1,150	1,098	630	671	N.A.	336	74	1,253	N.A.	..	339	5,551
	N.A.	1,892	1,193	1 382	586	N.A.	157	24	8	N.A.	75	335	5,652

TABLE VI—SCHOOL STATISTICS—CHILD HEALTH CENTRES ASSOCIATED WITH THE OFFICE OF THE ASSISTANT DIRECTOR

				Office of Asst. Director—Manly- Warringah, Sutherland	Bexley	Chatswood	Eastern Suburbs	Forest Lodge	Ryde	Yagoona	Total
Number of Schools— (Primary and High Schools)											
Departmental	..	..	..	91	54	88	50	64	55	53	455
Catholic	..	..	..	29	24	32	47	33	31	18	214
Other	..	..	..	..	3	12	14	2	6	16	53
	..	..	..	120	81	132	111	99	92	87	722
Total	..	..	..	80	68	129	102	74	68	81	602
Number of Schools Examined											
Departmental	..	..	..	59,828	34,459	45,085	30,135	31,225	38,261	34,557	273,550
Catholic	..	..	..	12,143	10,268	12,799	14,300	10,276	15,731	7,873	83,390
Other	..	..	..	1,565	222	3,981	5,390	1,618	2,603	642	16,021
Total	..	..	..	73,536	44,949	61,865	49,825	43,119	56,595	43,072	372,961
Number of Children Examined—											
Primary School	..	..	..	13,646	8,835	13,647	11,321	11,132	10,207	11,950	80,738
High School	..	..	..	8,666	6,889	8,422	7,543	5,466	9,877	7,402	54,265
Total	..	..	..	22,312	15,724	22,069	18,864	16,598	20,084	19,352	135,003

TABLE VI (a)—SCHOOL STATISTICS—HEALTH DISTRICTS

	Western Metropolitan				Newcastle		North Coast	North West	Western	Riverina	Broken Hill	South Coast	Total
	Cabramatta Child Health Centre	Parramatta Child Health Centre	Blacktown area	Camden Campbelltown area	Child Health Centre	Rem. Health District							
Number of Schools (Primary and High Schools)—													
Departmental .. ..	73	55	80	n.a.	142	331	258	158	286	320	13	250	1,966
Catholic .. ..	13	29	18	n.a.	38		41	43	83	77	7	61	410
Other .. ..	12	4	1	n.a.	5								22
Total .. ..	98	88	99	n.a.	185	331	299	201	369	397	20	311	2,398
Number of schools examined .. ..	53	55	39	..	182	138	136	126	227	226	16	224	1,422
School Population—													
Departmental .. ..	51,978	36,022	n.a.	n.a.	53,684	n.a.	32,351	32,571	15,978	n.a.	6,680	64,077	293,341
Catholic .. ..	8,243	12,763	n.a.	n.a.	11,002	n.a.	7,713	8,326	4,133	n.a.	1,140	15,256	63,876
Other .. ..	610	224	n.a.	n.a.	541	n.a.							1,375
Total .. ..	60,831	49,009	n.a.	n.a.	65,227	n.a.	40,064	40,897	* 20,111	..	7,820	79,333	363,292
Number of Children Examined—													
Primary school .. ..	8,359	10,654	5,497	3,880	22,792	6,347	7,283	12,361	7,190	11,197	n.a.	22,318	117,878
High school .. ..	8,491	6,512	6,577	n.a.	8,081	1,895	4,717	4,401	4,829	4,305	780	9,743	60,331
Total .. ..	16,850	17,166	12,074	3,880	30,873	8,242	12,000	16,762	12,019	15,502	780	32,061	178,209

\* excludes schools not dealt with by Departmental School Medical Service.

TABLE VII—NOTIFIED DEFECTS—HIGH SCHOOL EXAMINATIONS—OFFICE OF THE ASSISTANT DIRECTOR AND ASSOCIATED CHILD HEALTH CENTRES

Defects	Office of the Asst/Director		Bexley		Chatswood		Eastern Suburbs		Forest Lodge		Ryde		Yagoona		Total
	328 8,666		235 6,889		154 8,422		619 7,543		309 5,466		431 9,877		169 7,402		2,245 54,265
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
Vision .. .. .	94	101	96	96	60	80	233	172	85	147	131	105	51	73	1,524
Hearing .. .. .	20	18	15	4	8	6	47	17	18	9	22	15	16	12	227
Nose and Throat .. .. .	1	1	7	2	..	..	..	1	..	..	..	..	..	..	12
Teeth .. .. .	1	1	..	..	..	..	34	36	2	12	19	16	3	4	128
Infestation .. .. .	..	..	..	1	..	..	..	1	..	3	..	1	..	..	6
Skin .. .. .	14	43	3	3	..	..	..	1	..	5	3	1	1	..	83
Thyroid .. .. .	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1
Heart and Circulation .. .. .	..	3	..	1	..	..	2	1	..	..	..	..	..	..	7
Lungs .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Development .. .. .	..	5	1	..	..	..	4	..	..	..	2	..	..	..	11
Orthopaedic .. .. .	1	1	..	..	..	..	1	..	..	4	..	..	..	..	9
Nervous System .. .. .	..	..	..	..	..	..	2	..	..	..	..	..	..	..	2
Nocturnal Enuresis .. .. .	2	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Psychological .. .. .	0	8	..	..	..	..	5	1	..	3	15	7	..	1	40
Speech .. .. .	2	..	..	..	..	..	1	1	..	1	7	3	1	1	17
Other .. .. .	4	8	..	6	..	..	33	15	5	15	40	44	2	3	175

TABLE VII (a)—NOTIFIED DEFECTS—HIGH SCHOOL EXAMINATIONS—HEALTH DISTRICTS

	Western Metropolitan				Newcastle		North Coast		North West		Western		Riverina		Broken Hill		South Coast		Total
	Cabramatta Child Health Centre		Parramatta Child Health Centre		Blacktown Area		Child Health Centre		Rem. Health District		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
Total number notified	881	254	538	397	1,215	214	188	558	404	47	681	5,377							
Total number examined	8,491	6,512	6,577	8,081	1,895	4,717	4,401	4,829	3,305	731	9,743	59,282							
Defects	Boys		Girls		Boys		Girls		Boys		Girls		Boys		Girls		Boys		Girls
Vision	253	352	100	92	129	150	115	158	109	74	66	47	63	115	127	52	106	197	2,605
Hearing	56	35	23	19	48	57	40	51	69	63	13	17	14	37	30	20	19	49	740
Nose and Throat	39	25	..	2	17	19	6	3	35	32	..	3	5	50	44	6	14	23	99
Teeth	1	7	..	6	4	10	10	10	27	20	5	4	2	2	6	23	36	14	392
Infestation	9	44	..	10	6	3	11	1	8	5	4	3	2	50	49	29	10	14	68
Skin	..	2	..	8	3	11	..	..	31	14	1	..	..	3	17	1	4	2	265
Thyroid	..	..	..	..	..	1	..	..	44	17	3	..	..	1	..	..	5	1	49
Heart and Circulation	..	..	..	..	..	7	1	..	32	9	..	1	..	..	..	..	7	1	58
Lungs	..	..	..	..	..	..	..	..	44	17	3	..	..	..	..	..	4	1	77
Development	..	..	..	..	3	7	1	..	9	5	..	2	3	..	3	2	1	1	68
Orthopaedic	4	5	..	..	3	1	..	..	25	12	..	2	3	2	4	2	4	7	53
Nervous System	..	..	..	..	1	1	..	..	81	62	..	2	2	..	1	1	3	2	44
Nocturnal Enuresis	..	..	..	..	7	8	..	1	84	34	..	1	2	..	1	..	..	..	152
Psychological	11	10	..	3	7	1	..	..	35	5	..	2	..	10	4	7	..	1	168
Speech	7	7	1	2	1	1	2	..	35	5	..	2	..	3	3	12	4	4	94
Other	7	7	8	3	8	31	..	2	131	138	5	6	7	3	3	12	24	31	445

TABLE VIII—STATISTICS RELATING TO MEDICAL OFFICERS' APPOINTMENTS—CHILD HEALTH CENTRES—ASSOCIATED WITH THE OFFICE OF THE ASSISTANT DIRECTOR

Type of Case			Bexley	Chatswood	Eastern Suburbs	Forest Lodge	Ryde	Yagoona	Total
New Cases	..	..	..	..	..	..	..	..	3,170
Review Cases	..	..	..	..	..	..	..	..	2,089
Total	..	..	..	..	..	..	..	..	5,259
			407	668	555	472	515	553	
			132	605	409	304	219	420	
			539	1,273	964	776	734	973	

REFERRING AGENCIES OF NEW CASES

Agencies		Bexley	Chatswood	Eastern Suburbs	Forest Lodge	Ryde	Yagoona	Total
Parent Application	..	233	481	331	167	229	277	1,718
Family Physician or Specialist	..	42	72	21	36	46	59	276
Department of Education	..	62	68	91	129	111	122	583
Department of Child Welfare and Social Welfare	..	15	8	8	10	7	39	87
Social Agency	..	6	2	3	9	2	3	25
Hospital	..	7	..	5	6	1	4	23
Bureau Officer	..	35	34	96	108	118	39	430
Magistrate or Police Officer	..	1	..	..	3	..	1	5
Other Agencies	..	6	3	..	4	1	9	23

TABLE VIII (a)—STATISTICS RELATING TO MEDICAL OFFICERS' APPOINTMENTS—CHILD HEALTH CENTRES—HEALTH DISTRICTS

	Western Metropolitan		Newcastle	Total
	Cabramatta	Parramatta		
New Cases .. .. .	465	724	786	1,975
Review Cases .. .. .	241	621	726	1,588
Total .. .. .	706	1,345	1,512	3,563

REFERRING AGENCIES OF NEW CASES

	Western Metropolitan		Newcastle	Total
	Cabramatta	Parramatta		
Parent Application .. .. .	204	395	383	982
Family Physician or Specialist .. .. .	51	130	77	258
Department of Education .. .. .	102	137	118	357
Department of Child Welfare and Social Welfare	29	9	29	67
Social Agency .. .. .	4	8	4	16
Hospital .. .. .	2	2	5	9
Bureau Officer .. .. .	64	43	144	251
Magistrate or Police Officer .. .. .	....	....	3	3
Other Agencies .. .. .	9	....	23	32

TABLE IX—AN ANALYSIS OF THE REASONS FOR REFERRAL OF NEW CASES TO CHILD HEALTH CENTRES ASSOCIATED WITH THE OFFICE OF THE ASSISTANT DIRECTOR BY SCHOOL AGE GROUPS EXPRESSED AS PER CENT OF THE TOTAL IN EACH CENTRE

These figures do not necessarily total 100, owing to rounding errors

Reason for Referral	Bexley		Chatswood		Eastern Suburbs		Forest Lodge		Ryde		Yagoona	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Pre-School—												
Physical Defects ..	0.25	0.25	1.20	0.75	0.72	0.18	1.48	0.42	0.39	0.58	0.90	0.54
Emotional Problems ..	4.42	1.97	4.04	3.44	2.70	1.98	4.45	3.39	2.52	2.14	3.07	0.90
Mental Retardation ..	0.25	..	0.15	..	0.36	0.36	1.27	..	..	0.19	0.72	..
Educational Problems ..	..	0.50	..	..	..	0.36	0.21	0.21	0.19	0.19	..	..
Speech Disorders ..	1.97	0.98	0.30	0.30	1.26	0.54	2.75	1.05	3.69	1.75	4.52	1.99
Other and Nocturnal Enuresis ..	0.50	0.50	0.15	0.30	0.18	0.54	0.21	..	0.58	..	0.54	0.72
Mixed Problems ..	0.50	0.25	0.90	0.30	1.26	0.72	0.63	..	0.78	0.39	1.26	0.36
Total ..	7.89	4.45	6.74	5.09	6.48	4.68	11.00	5.07	8.15	5.24	11.01	4.51
Infant's School—												
Physical Defects ..	3.74	2.21	2.25	1.05	2.52	1.62	1.05	0.84	1.55	0.58	3.25	1.27
Emotional Problems ..	10.00	3.29	15.42	5.83	7.57	2.70	15.90	6.35	10.78	5.24	10.13	4.15
Mental Retardation ..	2.70	0.50	..	..	0.72	0.18	1.05	0.84	0.78	0.58	0.54	0.72
Educational Problems ..	6.58	1.72	2.55	0.75	4.50	1.98	1.91	1.05	4.66	2.33	4.88	1.27
Speech Disorders ..	2.21	1.80	0.15	..	1.98	0.18	4.45	0.84	4.66	1.94	6.15	1.63
Other and Nocturnal Enuresis ..	1.00	..	0.45	..	0.36	..	..	..	0.58	0.58	0.72	0.18
Mixed Problems ..	2.31	0.84	2.40	3.89	3.24	1.62	1.48	0.42	3.30	0.58	1.80	1.45
Total ..	28.54	10.36	23.22	11.52	20.89	8.28	25.84	10.34	26.31	11.83	27.47	10.67
Primary School—												
Physical Defects ..	3.93	1.97	2.40	1.65	3.60	1.80	0.42	1.91	0.97	0.39	1.80	0.90
Emotional Problems ..	11.90	3.40	14.67	6.90	11.53	4.87	13.98	5.93	9.32	4.86	10.85	5.24
Mental Retardation ..	1.47	0.84	0.45	..	0.36	0.36	0.84	0.42	0.39	0.58	0.18	0.18
Educational Problems ..	3.69	0.84	3.68	0.90	5.59	2.88	2.12	0.42	10.10	4.66	4.88	1.99
Speech Disorders ..	1.00	0.50	..	0.15	1.44	0.72	1.05	0.42	0.97	0.19	0.36	0.18
Other and Nocturnal Enuresis ..	0.50	0.50	..	..	0.18	0.18	..	0.21	1.36	1.17	0.54	0.90
Mixed Problems ..	..	3.29	2.84	0.90	2.88	0.90	0.84	..	1.94	0.78	2.35	0.54
Total ..	22.49	11.34	24.04	10.50	25.58	11.71	19.25	9.31	25.05	12.63	20.96	9.93
High School—												
Physical Defects ..	1.25	1.00	1.05	0.30	2.70	2.52	0.21	1.48	0.19	..	1.27	0.54
Emotional Problems ..	5.16	4.28	7.34	7.78	6.85	5.95	7.63	7.42	3.89	2.14	5.79	3.98
Mental Retardation ..	..	..	..	..	0.18	0.18	..	0.21	..	0.19	..	0.18
Educational Problems ..	1.00	0.25	0.60	..	1.26	0.54	1.27	0.21	0.97	0.39	0.36	0.18
Speech Disorders ..	..	..	..	..	0.18	0.36	0.42	..	0.39	0.39	1.27	..
Other and Nocturnal Enuresis ..	0.50	0.25	0.15	..	0.18	..	..	0.21	0.78	0.39	0.72	0.18
Mixed Problems ..	1.00	0.50	1.05	0.75	0.90	0.54	0.42	..	0.39	0.39	0.36	0.54
Total ..	8.91	6.28	10.19	8.83	12.25	10.09	9.95	9.53	6.61	3.89	9.77	5.60

TABLE IX (a)—ANALYSIS OF THE REASONS FOR REFERRAL OF NEW CASES TO CHILD HEALTH CENTRES—  
HEALTH DISTRICTS BY SCHOOL AGE GROUPS AS PER CENT OF THE TOTAL

							Western Metropolitan				Newcastle	
							Cabramatta		Parramatta		Boys	Girls
							Boys	Girls	Boys	Girls		
Pre-School—												
Physical Defects	..	..	..	..	..	..	0·64	0·64	0·41	0·55	2·70	1·50
Emotional Problems	..	..	..	..	..	..	2·15	1·50	4·83	2·07	4·20	2·40
Mental Retardation	..	..	..	..	..	..	1·50	0·22	0·13	0·13	0·50	1·00
Educational Problems	..	..	..	..	..	..	0·22	0·43	..	..	..	..
Speech Disorders	..	..	..	..	..	..	1·07	0·43	3·03	0·41	2·80	1·10
Other and Nocturnal Enuresis	..	..	..	..	..	..	1·07	0·22	0·28	..	0·70	0·70
Mixed Problems	..	..	..	..	..	..	0·86	0·64	1·79	0·69	1·30	0·70
Total	..	..	..	..	..	..	7·51	4·08	10·47	3·85	12·20	7·40
Infants' School—												
Physical Defects	..	..	..	..	..	..	2·37	1·72	2·62	1·51	3·80	2·30
Emotional Problems	..	..	..	..	..	..	6·88	4·73	9·53	4·69	7·10	4·40
Mental Retardation	..	..	..	..	..	..	0·86	0·64	1·10	0·55	0·90	0·60
Educational Problems	..	..	..	..	..	..	2·36	1·29	4·28	0·55	3·80	1·30
Speech Disorders	..	..	..	..	..	..	0·64	0·22	1·79	0·82	5·50	1·60
Other and Nocturnal Enuresis	..	..	..	..	..	..	0·64	1·50	0·13	..	1·30	0·70
Mixed Problems	..	..	..	..	..	..	8·17	3·87	6·35	1·38	4·80	3·70
Total	..	..	..	..	..	..	21·92	13·97	25·80	9·50	27·20	14·60
Primary School—												
Physical Defects	..	..	..	..	..	..	3·01	..	1·51	1·79	2·30	2·60
Emotional Problems	..	..	..	..	..	..	10·75	3·87	9·53	4·28	8·40	2·70
Mental Retardation	..	..	..	..	..	..	0·43	..	2·76	1·65	0·40	0·10
Educational Problems	..	..	..	..	..	..	2·58	1·50	3·73	3·45	6·40	1·80
Speech Disorders	..	..	..	..	..	..	0·22	..	0·55	..	0·90	0·40
Other and Nocturnal Enuresis	..	..	..	..	..	..	1·72	0·43	0·41	0·28	1·50	1·00
Mixed Problems	..	..	..	..	..	..	7·46	5·59	4·69	0·96	3·50	0·60
Total	..	..	..	..	..	..	26·17	11·39	23·18	12·41	23·40	9·20
High School—												
Physical Defects	..	..	..	..	..	..	0·64	0·64	1·24	1·24	0·70	0·90
Emotional Problems	..	..	..	..	..	..	3·87	5·38	5·11	4·42	1·50	1·50
Mental Retardation	..	..	..	..	..	..	..	0·22	0·55	0·27	0·20	..
Educational Problems	..	..	..	..	..	..	0·86	..	0·13	0·27	0·20	0·70
Speech Disorders	..	..	..	..	..	..	..	..	..	..	..	..
Other and Nocturnal Enuresis	..	..	..	..	..	..	0·86	0·43	0·13	0·13	0·10	..
Mixed Problems	..	..	..	..	..	..	1·29	0·86	0·82	0·27	..	..
Total	..	..	..	..	..	..	7·52	7·53	7·98	6·60	2·70	3·10

The figures do not necessarily total 100 owing to rounding errors.

TABLE X—PRE-SCHOOL KINDERGARTENS—OFFICE OF THE ASSISTANT DIRECTOR AND ASSOCIATED  
CHILD HEALTH CENTRES

	Office of the Assistant Director	Bexley	Chatswood	Eastern Suburbs	Forest Lodge	Ryde	Yagoona	Total
Number of Pre-School Kinder- gartens .. ..	33	22	32	8	27	13	12	147
Full Examinations .. ..	1611	517	1,414	322	644	535	299	5,342
Review Examinations .. ..	285	219	149	28	398	129	20	1,228
Total .. ..	1,896	736	1,563	350	1,042	664	319	6,570
Number of Defects notified ..	793	11	79	51	169	59	9	1,171

TABLE X (a)—PRE-SCHOOL KINDERGARTENS—HEALTH DISTRICTS

	Western Metropolitan			Newcastle		North Coast	North West	Western	Riverina	Broken Hill	South Coast	Total
				Child Health Centre	Rem. Health District							
	Cabramatta Child Health Centre	Parramatta Child Health Centre	Blacktown Area									
Number of Pre-School Kinders	6	24	17	5	..	..	1	2	13	3	4	75
Full examinations	119	964	194	273	..	..	7	16	426	160	259	2,418
Review examinations	3	..	*6	36	..	..	13	114	14	13	17	216
Total	122	964	200	309	..	..	20	130	440	173	276	2,634
Number of Defects notified	32	80	14	28	..	..	4	22	72	23	32	307

\* Conducted by Medical Officers only.  
(607 review examinations of vision and hearing were also carried out by 2 nursing sisters)

TABLE XI—NOTIFIED DEFECTS—PRE-SCHOOL KINDERGARTENS—OFFICE OF THE ASSISTANT DIRECTOR AND ASSOCIATED CHILD HEALTH CENTRES

	Office of the Assistant Director		Bexley		Chatswood		Eastern Suburbs		Forest Lodge		Ryde		Yagoona		Total
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
Vision	35	22	2	1	9	5	5	2	8	8	1	1	2	2	103
Hearing	44	27	..	..	10	11	12	6	4	4	6	..	1	1	128
Nose and Throat	40	29	..	..	2	..	1	1	3	3	..	..	..	..	79
Teeth	2	2	..	..	..	..	2	..	9	3	..	..	..	..	18
Infestation	..	..	..	..	..	..	..	..	1	1	..	..	..	..	2
Skin	10	7	..	1	5	1	1	1	7	5	..	..	..	..	38
Thyroid	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Heart and Circulation	5	9	1	2	1	1	..	2	..	2	3	..	..	..	26
Lungs	8	5	1	..	..	..	1	2	..	5	2	..	..	..	32
Development	11	5	1	..	9	..	1	1	4	1	3	..	1	..	36
Orthopaedic	120	75	..	..	10	4	2	1	15	6	7	1	1	..	243
Nervous System	3	4	..	..	..	..	..	..	1	..	4	4	..	..	16
Nocturnal Enuresis	42	23	..	..	..	..	..	..	21	9	2	1	..	..	98
Psychological	81	57	1	1	4	..	3	3	8	9	5	..	..	..	172
Speech	36	28	1	..	2	4	1	..	6	..	7	..	1	..	89
Other	31	32	..	..	1	..	2	2	8	13	1	..	..	1	91

Percentage of Pre-School Children notified = 17.82. Defects Grand Total 1,171

TABLE XI (a)—NOTIFIED DEFECTS—PRE-SCHOOL KINDERGARTENS—HEALTH DISTRICTS

	Western Metropolitan						Newcastle				North Coast		North West		Western		Riverina		Broken Hill		South Coast		Total		
	Cabramatta Child Health Centre			Parramatta Child Health Centre			Blacktown Area		Child Health Centre		Rem. Health District		Boys		Girls		Boys		Girls		Boys			Girls	
	Boys	Girls		Boys	Girls		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls			
Vision	1	3		8	4		..	1	2	2	..	..	..	1	1	3	3	2	3	3	2	1	33		
Hearing..	4	..		12	11		3	4	1	1	..	..	..	..	..	..	4	5	1	1	2	..	52		
Nose and Throat	2	..		2	..		..	1	..	..	..	..	..	..	..	..	..	6	5	1	1	2	23		
Teeth ..	7	..		..	..		..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	1	15		
Infestation	..	..		..	..		..	..	..	..	..	..	..	..	..	..	..	..	2	2	2	..	8		
Skin ..	..	..		1	..		..	1	..	..	..	..	..	..	..	..	..	2	5	1	..	3	15		
Thyroid..	..	..		1	2		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Heart and Circulation	..	..		..	..		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Lungs ..	2	..		8	1		..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	..	11		
Development	4	3		2	3		1	2	..	..	..	..	..	..	..	..	..	1	1	2	3	2	9		
Orthopaedic	..	..		..	..		..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	18		
Nervous System	..	..		1	..		..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	31		
Nocturnal Enuresis	..	..		..	..		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2		
Psychological	1	..		6	9		..	2	1	1	..	..	..	..	..	..	..	2	1	1	..	1	16		
Speech ..	4	..		3	3		..	5	2	2	..	..	..	..	..	..	..	1	1	1	..	..	23		
Other ..	..	..		2	1		3	..	..	..	..	..	..	..	..	..	..	4	2	..	2	2	26		
Total	32	80	14	28	..	4	22	72	23	32	307														

TABLE XII—HEARING UNITS—OFFICE OF ASSISTANT DIRECTOR AND ASSOCIATED CHILD HEALTH CENTRES

	Head Office		Bexley		Chatswood		Eastern Suburbs		Forest Lodge		Ryde		Yagoona	
	132		254		401		304		280		424		223	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
New Cases of Normal Hearing	15	13	28	18	37	15	48	38	19	16	2	2	17	14
Review Cases Normal Hearing	5	4	38	21	77	43	16	14	36	33	21	21	38	20
New Cases Remediable—														
(a) Referred for review	9	10	8	..	40	24	..	..	31	24	72	70	21	22
(b) Referred for treatment	23	11	16	8	25	16	52	39	19	12	68	58	24	21
(c) Receiving treatment	..	..	21	5	3	1	..	1	2	2	10	12	2	1
Review Cases Remediable—														
(a) Referred for review	..	11	15	6	94	48	13	8	49	23	122	78	39	18
(b) Referred for treatment	..	11	23	11	35	14	..	..	17	6	5	5	23	9
(c) Receiving treatment	1	2	26	11	17	7	..	..	9	7	131	77	1	..
Cases recommended for O.D. Classes	..	..	4	..	..	..	..	..	..	..	..	..	..	..
Cases recommended for deaf school	..	1	..	..	..	..	..	..	..	..	..	..	..	..
New Cases chronic deafness	5	5	1	..	2	1	..	6	5	1	1	1	8	3
Review cases chronic deafness	3	1	10	6	12	5	9	3	11	25	3	5	14	8
Hearing Aids Recommended	1	1	1	..	1	1	1	3	..	1	..	4	2	..

TABLE XII (a)—HEARING UNITS—WESTERN METROPOLITAN HEALTH DISTRICT—CHILD HEALTH CENTRES

	Cabramatta		Parramatta	
	281		892	
Number investigated .. .. .	Boys	Girls	Boys	Girls
Results of Investigations .. .. .				
New Cases of Normal Hearing .. .. .	16	12	21	13
Review Cases Normal Hearing .. .. .	21	16	102	79
<i>New Cases remediable:</i>				
(a) Referred for review .. .. .	56	50	86	68
(b) Referred for treatment .. .. .	29	14	31	32
(c) Receiving treatment .. .. .	3	2	13	13
<i>Review Cases Remediable:</i>				
(a) Referred for Review .. .. .	20	11	123	103
(b) Referred for treatment .. .. .	15	11	25	28
(c) Receiving treatment .. .. .	4	1	20	15
Cases recommended for O.D. Classes .. .. .	—	—	—	—
Cases recommended for Deaf School .. .. .	—	—	—	—
New Cases Chronic deafness .. .. .	—	—	17	10
Review Cases Chronic deafness .. .. .	—	—	63	30
Hearing aids Recommended .. .. .	—	—	—	—

TABLE XIII—STATISTICS RELATING TO CHILD GUIDANCE CLINICS—OFFICE OF THE ASSISTANT DIRECTOR AND ASSOCIATED CHILD HEALTH CENTRES

	Office of Assistant Director			Child Health Centres						Total
	Yasmar	Brisbane	Minda	Bexley	Chatswood	Eastern Suburbs	Forest Lodge	Ryde	Yagoona	
New Cases 1970	332	578	693	307	292	320	214	194	188	3,118
Cases from 1969 continued to 1970	..	559	..	91	345	150	140	207	126	1,618
Old cases reopened	..	29	..	44	28	6	41	17	11	176
Cases closed 1970	332	456	693	355	324	366	251	262	207	3,246
Cases attending and continuing to 1971	..	710	..	87	341	110	144	156	118	1,666
Total case load 1970	332	1,166	693	442	665	476	395	418	325	4,912
Age Range (closed cases)—										
0-5 years	..	82	..	48	33	66	41	18	22	310
6-11 years	33	231	43	171	171	137	155	125	118	1,184
12-15 years	183	118	465	69	85	92	52	103	59	1,226
15 + years	116	25	185	67	35	71	3	16	8	526
Referring Agencies (New Cases)—										
Children's Courts	332	59	693	23	..	60	2	2	..	1,171
Department Child Welfare and Social Welfare	..	13	..	18	8	10	9	4	8	70
Personal application by parents etc.	..	261	..	7	149	64	71	70	78	700
Department of Education	..	83	..	58	37	8	61	63	49	359
Social Agencies, Hospitals etc.	..	30	..	14	18	12	13	14	4	105
Private Practitioners, Psychiatrists	..	38	..	31	50	26	17	15	17	194
Bureau Officers (Medical Officer, Nurses)	..	90	..	140	9	130	30	20	10	429
Speech therapists	..	4	..	16	21	10	11	6	22	90

TABLE XIII (a)—STATISTICS RELATING TO CHILD GUIDANCE CLINICS—CHILD HEALTH CENTRES—  
HEALTH DISTRICTS

	Western Metropolitan		Newcastle	Total
	Cabramatta	Parramatta		
New Cases 1970 .. .. .	89	547	346	982
Cases from 1969 continued to 1970 .. .. .	87	194	120	401
Old Cases reopened .. .. .	8	86	57	151
Cases closed 1970 .. .. .	113	580	531	1,224
Cases attending and continuing to 1971 .. .. .	71	147	216	434
Total case load 1970 .. .. .	184	827	523	1,534
<i>Age Range (closed cases)—</i>				
0—5 years .. .. .	9	83	28	120
6—11 years .. .. .	58	298	282	638
12—15 years .. .. .	46	172	181	399
15 + years .. .. .	—	27	40	67
<i>Referring Agencies (new cases)—</i>				
Children's Courts .. .. .	3	1	8	12
Dept of Child Welfare and Social Welfare .. .. .	6	1	5	12
Personal Application by parent etc. .. .. .	23	289	39	351
Dept of Education .. .. .	18	61	95	174
Social Agencies—hospitals etc. .. .. .	12	9	17	38
Private practitioners, psychiatrists .. .. .	8	110	84	202
Bureau Officers (Medical Officers, Nurses) .. .. .	5	58	77	140
Speech therapists .. .. .	14	18	21	53

TABLE XIV--STATISTICS RELATING TO CHILD GUIDANCE CLINICS--OFFICE OF THE ASSISTANT DIRECTOR AND ASSOCIATED CHILD HEALTH CENTRES

	Office of Assistant Director			Child Health Centres						
	Yasmar	Brisbane Street	Minda	Bexley	Chatswood	Eastern Suburbs	Forest Lodge	Ryde	Yagoona	
<i>Diagnostic Categories of Closed Cases—</i>										
Developmental disorders ..	9	50	30	16	41	18	16	31	29	
Organic syndrome ..	5	17	12	21	24	25	5	9	19	
Reactive to environment ..	172	275	278	112	102	110	152	50	31	
Disturbed social behaviour ..	103	84	141	153	36	136	25	130	10	
Psychoneurotic disorders ..	26	22	122	46	93	66	40	28	113	
Psychotic disorders ..	3	1	4	7	13	11	5	5	2	
Other ..	14	7	106	..	15	..	8	9	3	
<i>Results of Treatment (Closed Cases)—</i>										
Diagnosis only—no treatment required or offered	332	240	693	121	65	98	56	100	39	
Treatment offered but declined—failed to return ..	..	93	..	18	76	48	52	58	18	
Treatment given with unsatisfactory results ..	..	29	..	12	27	24	15	16	38	
Treatment given—symptomatic improvement ..	..	81	..	140	124	104	108	72	64	
Treatment satisfactory—good readjustment ..	..	13	..	64	32	92	20	16	48	

TABLE XIV (a)—STATISTICS RELATING TO CHILD GUIDANCE CLINICS—CHILD HEALTH CENTRES—  
HEALTH DISTRICTS

	Western Metropolitan		Newcastle
	Cabramatta	Parramatta	
<i>Diagnostic Categories of Closed Cases—</i>			
Developmental disorders .. .. .	12	61	17
Organic Syndrome .. .. .	2	76	45
Reactive to environment .. .. .	49	173	95
Disturbed Social behaviour .. .. .	14	107	59
Psychoneurotic disorders .. .. .	32	150	266
Psychotic disorders .. .. .	—	9	3
Others .. .. .	4	4	46
<i>Results of Treatment—closed cases—</i>			
Diagnosis only—no treatment required or offered .. .. .	49	233	n.a.*
Treatment offered but declined—failed to return .. .. .	29	92	n.a.
Treatment given with unsatisfactory results .. .. .	12	49	n.a.
Treatment given—symptomatic improvement .. .. .	17	169	n.a.
Treatment satisfactory—good readjustment .. .. .	6	37	n.a.

\* n.a. = not available.

TABLE XV—STATISTICS RELATING TO CHILD GUIDANCE CLINICS—OFFICE OF THE ASSISTANT DIRECTOR AND ASSOCIATED CHILD HEALTH CENTRES

	Office of the Assistant Director			Child Health Centres						Total
	Yasmar	Brisbane Street	Minda	Bexley	Chatswood	Eastern Suburbs	Forest Lodge	Ryde	Yagoona	
Psychiatrists—										
Diagnostic interviews	15	1,208	25	398	221	320	141	156	54	2,538
Review sessions	..	499	..	340	149	104	21	146	106	1,365
Therapy sessions	26	302	..	591	496	140	149	52	143	1,899
Group therapy sessions	..	258	..	..	143	..	..	..	..	401
Psychologists—										
Diagnostic testing sessions	332	294	693	227	258	270	120	174	216	2,584
Diagnostic interviews	..	5	..	10	168	427	202	7	45	864
Review sessions	..	33	..	47	59	96	139	12	107	493
Individual therapy sessions	..	1,075	..	1,113	502	1,406	684	1,126	672	6,578
Group therapy sessions	..	78	..	..	53	..	211	79	..	421
Home and school visits	..	..	..	4	10	..	24	1	5	44
Psychiatric Social Workers—										
Diagnostic sessions	328	444	464	78	76	237	215	105	57	2,004
Review sessions	17	55	..	..	49	109	178	27	20	455
Individual therapy sessions	..	1,438	12	506	384	1,067	1,078	704	44	5,233
Group therapy sessions	..	24	..	..	78	..	23	3	..	128
Home and school visits	..	..	..	4	6	30	26	16	1	83

TABLE XV (a)—STATISTICS RELATING TO CHILD GUIDANCE CLINICS—CHILD HEALTH CENTRES—  
HEALTH DISTRICTS

				Western Metropolitan		Newcastle	Total
				Cabramatta	Parramatta		
<i>Psychiatrists—</i>							
Diagnostic Interviews	..	..	..	14	302	187	503
Review Sessions	..	..	..	—	258	94	352
Therapy Sessions	..	..	..	—	—	234	234
Group Therapy Sessions	..	..	..	—	—	8	8
<i>Psychologists—</i>							
Diagnostic Testing Sessions	..	..	..	97	284	492	873
Diagnostic Interviews	..	..	..	82	271	116	469
Reviews Sessions	..	..	..	8	263	44	315
Individual Therapy Sessions	..	..	..	736	956	404	2,096
Group Therapy Sessions	..	..	..	109	36	218	363
Home and School Visits	..	..	..	13	—	—	13
<i>Psychiatric Social Worker—</i>							
Diagnostic Sessions	..	..	..	49	1	193	243
Review Sessions	..	..	..	—	191	18	209
Individual Therapy Sessions	..	..	..	343	667	637	1,647
Group Therapy Sessions	..	..	..	13	—	31	44
Home and School Visits	..	..	..	68	87	7	162

TABLE XVI—STATISTICS SPEECH THERAPY CLINICS—OFFICE OF ASSISTANT DIRECTOR AND ASSOCIATED CHILD HEALTH CENTRES

	Head Office	Brookvale	Child Welfare Department	Bexley	Chatswood	Eastern Suburbs	Forest Lodge	Ryde	Yagoona
Number of Clinics	1	1	2	3	3	2	2	3	2
Current January, 1970	..	17	40	112	31	44	19	7	43
Follow-up January, 1970	75	24	20	42	16	204	31	32	102
Under observation January, 1969	..	..	11	23	6	38	30	13	54
Admitted to Current	..	67	128	49	106	63	50	125	61
Admitted to Follow-up	113	58	116	102	173	118	531	212	76
Admitted to Under Observation	..	93	22	46	56	55	50	48	34
Discharged from Current	..	77	89	148	104	62	60	63	49
Failed to Attend	..	..	..	3	2	4	4	2	4
Unable to Attend—transferred	..	20	67	35	16	14	3	12	4
Under Observation	..	50	22	91	56	38	50	47	33
Relieved	..	7	..	19	30	6	3	2	8
Discharged from Follow-up	..	54	50	69	45	216	13	69	73
Discharged from Under Observation	..	47	13	24	17	64	37	16	33
Current December, 1970	..	7	79	13	33	55	..	69	57
Follow-up December, 1970	112	28	86	75	146	106	74	175	103
Under Observation December, 1970	..	46	20	45	45	29	53	45	55
Initial Interviews	166	95	310	150	255	107	83	325	94
Treatment not Indicated	35	32	77	14	32	24	15	38	26
Awaiting Initial Interview	12	8	28	80	48	21	5	118	16
Awaiting Current	..	1	..	11	29	9	1	10	13
Reviews	136	73	437	120	125	122	82	131	147
Total Seen	263	128	392	314	369	289	202	436	375
Attendances 1970	326	1,451	2,352	2,096	2,477	1,138	992	2,788	1,956
School Visits	12	41	3	12	17	64	24	18	23

TABLE XVII—STATISTICS—SPEECH THERAPY CLINICS—HEALTH DISTRICTS

	Western Metropolitan		Newcastle	North Coast		North-West	Western			Riverina	South Coast
	Cabramatta			Parramatta			Orange and Bathurst	Dubbo	Katoomba, Springwood		
Number of Clinics	2	3	2	1	1	1	2	1	2	1	2
Current January, 1970	41	31	59	31	27	29	35	10	..	26	37
Follow-up January, 1970	286	247	427	37	20	173	54	2	..	215	82
Under Observation January, 1970	38	112	105	35	3	15	24	..	..	37	82
Admitted to Current	40	101	55	46	34	27	62	38	9	8	152
Admitted to Follow-up	205	139	138	54	14	94	80	21	..	132	137
Admitted to Under Observation	36	90	39	39	13	19	44	19	4	15	76
Discharged from Current	44	120	84	59	14	24	63	28	1	22	133
Failed to Attend	2	5	4	5	1	2	2	1	1	1	10
Unable to Attend—transferred	3	13	39	7	..	2	14	5	..	1	32
Under Observation	36	89	40	39	13	19	44	19	..	15	68
Relieved	3	13	1	8	..	1	3	3	..	5	23
Discharged from Follow-up	78	191	279	45	..	99	50	4	..	74	104
Discharged from Under Observation	10	81	63	41	..	11	26	4	..	5	61
Current December, 1970	37	12	30	18	47	32	34	20	8	12	56
Follow-up December, 1970	413	195	286	46	34	168	84	19	..	273	115
Under Observation December, 1970	64	121	81	33	16	23	42	15	4	47	97
Initial Interviews	264	193	208	72	65	116	147	79	14	167	230
Treatment not Indicated	58	23	36	11	10	25	14	9	1	30	47
Awaiting Initial Interview	118	25	69	5	23	15	28	..	..	..	25
Awaiting Current	30	17	69	2	3	15	20	20	..	104	14
Reviews	381	363	468	100	11	474	135	11	..	230	176
Totals Seen	536	657	889	216	111	363	288	101	14	552	551
Attendances 1970	1,956	2,483	2,229	780	1,449	1,454	1,697	720	30	1,079	2,430
School Visits	19	9	2	17	20	39	29	8	1	27	26



TABLE XIX—CLASSIFICATION OF CASES—SPEECH THERAPY CLINICS—OFFICE OF THE ASSISTANT DIRECTOR AND ASSOCIATED CHILD HEALTH CENTRES

Classification	Head Office	Brookvale	Child Welfare Department	Bexley	Chatswood	Eastern Suburbs	Forest Lodge	Ryde	Yagoona
Aphonia/Dysphonia	1	1	2	..	2	1	..	8	..
Hypemasality/Hyponasality	2	2	5	2	1	4	..	1	3
Cleft Palate	3	2	4	6	4	3	1	5	9
Dyslalia	94	27	72	143	11	81	128	125	111
Sigmatism	5	3	18	17	26	34	6	15	17
Structural Artic Defect	..	..	4	3	1	4	1	1	1
Hearing Loss	6	5	10	6	13	2	3	8	8
Dysarthria	2	2	4	3	1	1	2	2	4
Dyspraxia	1	..	3	7	3	11	1	2	2
Alalia	..	..	..	2	5	1	..	..	8
Dyslalia, plus Language Problems	10	15	55	23	12	17	11	4	29
Aphasia/Dysphasia	7	9	17	9	26	22	1	17	14
Elective Mutism	3	5	..	..	2	1	..	4	4
Primary Stammer	13	2	6	32	25	22	8	13	25
Secondary Stammer	19	3	13	10	28	11	11	30	40
Clutter	2	..	..	..	2	..	..	1	..
Dyslalia plus Stammer	13	6	9	6	7	3	4	3	25
Delayed Speech and Language	48	15	93	31	68	26	10	48	49
Treatment not indicated	34	31	77	14	32	45	15	38	26
Totals—Total Number Seen	263	128	392	314	369	289	202	325	375

TABLE XX—CLASSIFICATION OF CASES—SPEECH THERAPY CLINICS—HEALTH DISTRICTS

	Western Metropolitan		Newcastle	North Coast		North-West	Western			Riverina	South Coast
	Cabramatta	Parramatta		Lismore and Murwillumbah	Grafton and Coffs Harbour		Orange and Bathurst	Dubbo	Katoomba, Springwood		
Aphonia/Dysphonia	2	1	9	3	..	2	1	..	6	2	
Hypernasality/Hyponasality	2	8	12	3	..	..	2	..	7	10	
Cleft Palate ..	12	12	19	8	3	14	10	1	11	18	
Dyslalia ..	199	279	325	114	61	168	125	45	229	203	
Stigmatism ..	72	23	46	11	3	..	15	3	62	37	
Structural Artic Defect	3	1	10	2	1	1	..	..	2	6	
Hearing Loss	6	21	20	2	6	4	5	5	18	20	
Dysarthria ..	3	5	8	2	4	2	4	..	4	4	
Dyspraxia ..	2	13	..	..	..	..	2	..	..	12	
Alalia ..	..	12	85	8	2	3	3	1	7	2	
Dyslalia, plus Language Problems	17	62	51	11	17	62	19	5	19	32	
Aphasia/Dysphasia	11	31	58	3	1	1	29	8	25	14	
Elective Mutism ..	..	2	..	2	..	..	2	..	..	1	
Primary Stammer ..	40	23	61	14	..	24	5	11	58	38	
Secondary Stammer	28	58	73	4	7	34	23	4	24	35	
Clutter ..	1	1	1	1	1	2	1	1	..	..	
Dyslalia plus Stammer	28	14	53	..	1	13	6	2	39	7	
Delayed Speech and Language	52	71	58	17	10	8	23	3	41	62	
Treatment not indicated	58	23	..	11	..	25	14	9	..	47	
Total Number Seen	536	660	889	216	121	363	288	101	552	550	

TABLE XXI—SPEECH CLINICS—OFFICE OF THE ASSISTANT DIRECTOR, ASSOCIATED CHILD HEALTH CENTRES AND HEALTH DISTRICTS

[illegible]

TABLE XXII—REFERRAL OF CASES—SPEECH THERAPY CLINICS—OFFICE OF ASSISTANT DIRECTOR AND ASSOCIATED CHILD HEALTH CENTRES

	Office of Assistant Director	Brookvale	Child Welfare Department	Bexley	Chatswood	Eastern Suburbs	Forest Lodge	Ryde	Yagoona
Child Guidance Clinics .. .. .	..	1	11	2	11	18	12	8	19
Hearing Clinic .. .. .	..	1	3	3	9	5	..	4	..
Psychologist .. .. .	1	15	25	21	10	5	..	7	10
Division of Guidance and Adjustment .. .. .	8	1	8	5	19	15	3	12	12
Bureau Officer .. .. .	..	2	1	5	8	8	4	4	8
Grosvenor .. .. .	1	..	..	..	1	..	..	..	..
Diagnostic Team .. .. .	..	1	2	..	..	6	..	..	12
Commonwealth Acoustic Laboratory .. .. .	..	1	5	2	2	3	..	1	5
Paediatrician .. .. .	..	..	2	1	1	1	..	..	..
Orthodontist .. .. .	..	..	1	..	2	4	..	..	1
Neurologist .. .. .	..	..	5	..	2	5	..	1	5
E.N.T. Surgeon .. .. .	..	..	6	2	..	4	3	3	1
Other .. .. .	..	..	2	..	2	4	..	10	..

TABLE XXIII—REFERRAL OF CASES—SPEECH THERAPY CLINICS—HEALTH DISTRICTS

	Western Metropolitan		Newcastle	North Coast		North-West	Western			Riverina	South Coast
	Cabramatta	Parramatta		Lismore and Murwillumbah	Grafton and Coffs Harbour		Orange and Bathurst	Dubbo	Katoomba, Springwood		
Child Guidance Clinic	15	22	11	..	..	..	4	..	3	2	
Hearing Clinic	8	5	..	..	..	..	..	..	4	3	
Psychologist	3	21	25	..	..	..	1	..	..	1	
Division of Guidance and Adjustment	5	8	9	14	13	9	13	8	31	25	
Bureau Officer	32	35	52	42	22	9	..	..	52	24	
Grosvenor	..	..	..	..	..	1	1	..	4	2	
Diagnostic Team	..	..	..	12	3	9	7	..	16	..	
Commonwealth Acoustics Laboratory	2	9	6	12	1	..	4	6	5	10	
Paediatrician	..	2	10	..	..	..	..	..	..	3	
Orthodontist	1	1	1	..	1	..	1	..	1	2	
Neurologist	..	4	..	1	1	..	..	..	..	..	
E.N.T. Surgeon (or G.P.)	3	4	2	1	..	..	3	..	..	7	
Other	..	..	3	..	1	1	5	..	..	..	



TABLE XXV—TEACHERS COLLEGES—STATISTICS RELATING TO MEDICAL STAFF—STUDENT ENROLMENT AND HEALTH EDUCATION

College	Sydney	Alexander Mackie	Balmain	Armidale	Mitchell College	Newcastle	Wollongong	Westmead
Authorized Staff	2 S.M.O.s 3 M.O.s to Sept., 1970, there - after 2 M.O.s	1 S.M.O. 1 M.O. to June, 1970, only	1 M.O.	1 M.O., also does school medical ex - aminations	1 M.O. P.T.O.	1 M.O. 1 P.T.O.	1 M.O. pro - vided S.M.O. Nov., 1970, 1 P.T.O.	1 M.O.
Total enrolment .. .. .	3,514	626	525	1,393	429	1,684	762	294
Number of separate Health Education courses ..	10	2	6	5	2	5	3	1
Total number of lectures given per week ..	33	3	10	2-3	7	7-8	13	5
Number of examination papers set .. .. .	20	2	4	3	4	2	2	4
Total examination papers and assignments corrected ..	2,294	180	96	145	833	920	352	568
Number of Health Demonstration Lessons arranged ..	22	..	..	4	..	..	30	5
Number of students observed at Practice Teaching ..	39	..	20	..	..	..	6	..
Number of student visits arranged in Health Courses ..	8	..	5	..	..	..	3	..
Number of guest speakers invited .. .. .	3	1	2	..	1	..	1	3
Student consultations for medical and surgical first aid..	2,553	190	372	..	43	Not recorded	401	404
Student consultations (counselling) .. .. .	652	143	112	172	12	Not recorded	25	36
Total number of students immunized .. .. .	324	50	..	..	..	..	100	293
Assessment of fitness to resume after sick leave ..	52	120	21	1	1	Not recorded	Not recorded	10
Staff consultations for first aid .. .. .	227	100	8	3	3	Not recorded	50	6
Total number of students examined for Superannuation Benefits .. .. .	590	60	60	226	159	470	294	140
Number examined by College Medical Officers ..	..	..	60	226	159	470 by Deputy M.O.H.	294	140
Number examined by Medical Examination Centres ..	590	60	..	..	..	..	..	..

## SECTION OF MATERNAL AND INFANT CARE

*Assistant Director:* MARGARET M. SCOTT M.B., B.S., D.P.H. (Acting)

*Location:* 9-13 Young Street, Sydney

### STAFF

1 Senior Medical Officer  
3 Field Medical Officers  
1 Nurse Inspector  
1 Deputy Nurse Inspector  
7 Assistant Nurse Inspectors  
272 Baby Health Centre Sisters

### POLICY AND PROGRESS

During 1970, the Section of Maternal and Infant Care continued to maintain and promote preventive health services to mothers, infants, toddlers and pre-school children; and, to encourage the use of Baby Health Centre premises for additional services with the objective of maintaining the total health of the family and the community at the highest possible level.

In January, 1970, it was apparent, that if a continuous service was to be provided at the pre-natal clinics, day nurseries and pre-school kindergartens the section would require assistance with staffing; and in addition if the services were to be conducted economically it was essential to re-zone into Child Health Centre areas.

Prior to implementing this plan an In-Service training course was arranged at the Royal Hospital for Women for eight medical officers, from the Section of Child Health. At the conclusion of the course, four pre-natal clinics and seven Preparation for Parenthood classes were transferred for staffing to the appropriate Child Health Centres. In addition five day nurseries and eighteen pre-school kindergartens previously supervised by the section were re-allocated on a similar basis.

With the appointment of the assistant nurse inspector to the Western Metropolitan Health District in 1970, forty-four Baby Health Centres were decentralized under the control of the medical officer of health. Prior to the transfer of the centres, itineraries were reviewed and staff re-allocated as far as practicable to work within the boundaries of the health district.

To date it has not been possible to completely decentralize medical staff to conduct the eight pre-natal clinics and six Preparation for Parenthood classes located in the Western Metropolitan Health District. However, it is anticipated that this will be possible early in 1971.

Thirteen pre-natal clinics continued to operate throughout the year and of these three were located in the Newcastle Health District. The attendances at the clinics increased from 8,483 to 9,900.

The two consultant clinics staffed by consultants from the Royal Hospital for Women, Paddington and the Women's Hospital, Crown Street, continued to operate at Parramatta and Liverpool and in addition a third consultant clinic was established at Blacktown staffed by a consultant from St Margaret's Hospital for Women, Darlinghurst.

The demand for Preparation for Parenthood classes continued to increase and one additional class was established at Blacktown Baby Health Centre. The number of combined evening sessions for parents conducted throughout the year increased from 11 to 27 and the attendances increased from 400 to 1,098.

The number of Well Baby clinics conducted in Baby Health Centres increased to 38 and of these 10 were conducted by the field officers of the section. A total of 8,041 children were fully examined or reviewed and 1,258 were referred for further investigation or treatment.

As a result of the redistribution of services at the beginning of 1970 the number of day nurseries and pre-school kindergartens supervised by the section was reduced to a total of forty-four. One thousand eight hundred and eighty-seven (1,887) children were fully examined or reviewed and of these two hundred and fifty-nine (259) were notified as having a remediable defect.

In the latter part of 1970 routine hearing screening tests for the detection of deafness in 8-month-old babies were introduced as part of the Baby Health Centre service. The training programme for the Baby Health Centre sisters commenced in November, 1970 and it is anticipated that the metropolitan programme will be completed by the end of April, 1971. At the 31st December, 1970, sixteen sisters at twelve Baby Health Centres had completed their initial training and as a result fifty-eight babies received screening tests for the detection of deafness.

The use of Baby Health Centre premises for the establishment of selected community services has increased. A further Community Aid Service for the middle-aged commenced at Kingsgrove Baby Health Centre; additional community health services have been established in the Baby Health Centres at Brookvale, Narrabeen, Seaforth, Alexandria, West Pennant Hills and Willoughby; The Spastic Centre of New South Wales has established physiotherapy clinics for cerebral palsied children at Seven Hills, Gymea and Green Valley Baby Health Centres; and the Family Planning Association of Australia is conducting a family planning clinic one evening each week at the Green Valley Baby Health Centre. In addition the Chatswood Child Health Centre has established assessment services and speech therapy clinics in the Baby Health Centres at Artarmon, Northbridge and Willoughby. The Section of Maternal and Infant Care has received the utmost co-operation from the local government authorities in the establishment of these services and the authorities concerned have expressed appreciation that these community services are now operating.

### BABY HEALTH CENTRES

At the end of 1970, there were 442 Baby Health Centres operating in New South Wales, consisting of 162 in the metropolitan area and 280 in the remainder of the State.

During the year one additional new centre was established, three were transferred to new premises, six were closed and two services were temporarily suspended.

*Additional Centres in new premises.*—Premer.

*Replacement Centres transferred to new premises.*—Lake Cargelligo, Deniliquin and Wauchope.

*Closures.*—Greenthorpe, Woodstock, Guerie, Koorawatha, Matraville Migrant Hostel and Bunnerong Migrant Hostel.

*Temporary Closure pending construction of new premises.*—Leichhardt (service transferred to Annandale).

*Temporary Closure pending repairs to or reconstruction of Centre.*—Chatswood (service transferred to Willoughby and McMahon's Point).

In addition staff was provided for a new centre at the Endeavour Migrant Hostel. This centre was constructed and equipped by the Commonwealth Hostels Ltd. without cost to the Department.

Negotiations were also entered into during 1970, and tenders let, or work commenced for new Baby Health Centres at Waverley and Leichhardt. Action was also initiated for new centres at Carlingford, Redfern, Wee Waa and Glen Innes.

### BABY HEALTH CENTRES

#### New South Wales

The number of births in New South Wales for the year 1970 totalled 88,448 an increase of 2,158 on the previous year.

At the centres 80,322 individual infants under the age of one year were seen; the individual attendances were 167,154 and the total attendances were 1,126,681.

The Baby Health Centre sisters carried out a total of 46,810 home visits during the year and 57,403 mothers were visited in hospital.

#### Metropolitan Area

The number of births in the metropolitan area during 1970 totalled 53,101. Thirty-seven thousand two hundred and fifteen individual infants under the age of 1 year attended the 162 Baby Health Centres in the metropolitan area. The individual attendances were 104,397 and total attendances 695,837.

Nineteen thousand five hundred and eighty-three home visits were carried out by the sisters working at the centres and 33,794 mothers were visited in hospital.

Further details of attendances at Baby Health Centres throughout New South Wales are given in table I.

### PRE-NATAL CLINICS

#### New South Wales

Thirteen Pre-Natal Clinics continued to operate throughout the year and of these 10 were located in the metropolitan area and 3 in the Newcastle Health District. During 1970, 717 sessions were conducted and the attendances totalled 9,900.

### Metropolitan Area

The ten pre-natal clinics conducted by departmental officers continued to function during 1970 and provided a valuable and essential service to public patients living in the metropolitan area. The clinics which are free, operated on a weekly basis at the following Baby Health Centres: Parramatta (2), Liverpool (2), Green Valley, Manly, Dee Why, Blacktown, Mt Druitt, and Villawood Migrant Hostel.

The staffing of the metropolitan pre-natal clinics was arranged as follows:

<i>Section of Maternal and Infant Care</i>	<i>Section of Child Health</i>
Parramatta (2)	Manly
Liverpool (2)	Villawood Migrant Hostel
Green Valley	Blacktown
Dee Why	Mt Druitt

Five hundred and seventy-three clinic sessions were conducted during 1970. The consultant clinics, staffed by obstetricians from the Royal Hospital for Women, Paddington and the Women's Hospital, Crown Street continued to function successfully at Parramatta and Liverpool Baby Health Centres. In addition a similar consultant clinic staffed by obstetricians from St Margaret's Hospital, Darlinghurst commenced at Blacktown Baby Health Centre in September, 1970.

The services provided by the consultant clinics are considered to be of inestimable value to the expectant mothers living in the outer metropolitan districts as it provides for hospital booking, initial examination including blood tests and Papanicolaou smear to be carried out at the clinic thus eliminating the additional expense of travelling to and from the hospital.

At the other clinics, the expectant mothers are required to attend the obstetric hospital for booking and initial examination before referral to a departmental clinic.

Departmental dietitians continued to be available for consultation at the Liverpool, Parramatta, Dee Why and Manly pre-natal clinics.

A social worker from the Women's Hospital Crown Street continued to attend the pre-natal clinic at Liverpool and; a social worker from the Section of Special Services was available for consultation at Manly and Dee Why pre-natal clinics.

### Country

The pre-natal clinics at Cardiff, Belmont and Charlestown in the Newcastle Health District continued to operate throughout the year and were staffed by specialist obstetricians from the Royal Newcastle Hospital.

Details of attendances at pre-natal clinics shown in table II.

### PREPARATION FOR PARENTHOOD CLASSES

In 1970, sixteen continuous classes of eight sessions per course were conducted at the following Baby Health Centres in the Metropolitan Area: Parramatta (2), Liverpool, Green Valley, Blacktown (2), Dee Why (2), French's Forest, Drummoyne, Randwick, Hurlstone Park, Revesby, South Hurstville, Jannali and Cronulla. In addition three modified courses were conducted at the Training School for Girls, Parramatta.

The staffing of the Classes was arranged as follows:

<i>Section of Maternal and Infant Care</i>	<i>Section of Child Health</i>
Parramatta (2)	Dee Why
Liverpool	Randwick
Green Valley	Revesby
Dee Why	Jannali
French's Forest	Cronulla
Drummoyne	Blacktown (2)
South Hurstville	
Hurlstone Park	
Training School for Girls Parramatta	

A total of 97 courses were completed throughout the year and 1,664 expectant mothers attended.

The number of combined evening sessions conducted for expectant parents increased to 27 this year and the total attendances at the sessions were 1,098. The session includes the showing of the Swedish film "The Child" and a talk and discussion on child management during the early years. Twenty-six of these evening sessions were conducted by the senior medical officer, Section of Maternal and Infant Care; and one session by the specialist paediatrician, Section of Special Services. The majority of expectant mothers attending the courses continue to be classified as private or intermediate patients and it is planned to investigate the practical aspects of conducting a Saturday class to encourage the attendance of public patients who may be reluctant to lose time and monetary remuneration if they attend during the week.

Details of attendances at Preparation for Parenthood classes are given in table III.

### WELL BABY CLINICS

During the year thirty-eight Well Baby clinics were conducted on a regular basis at selected Baby Health Centres in the metropolitan area. The staffing was provided as follows:

*Section of Maternal and Infant Care.*—Auburn, Dulwich Hill, French's Forest II, Blacktown, Epping, Green Valley, Campsie, French's Forest I, Lane Cove, and Dee Why.

*Section of Child Health.*—Avalon, Gladesville, Mt Druitt, Sutherland, Bankstown, Granville, Randwick, Turramurra, Cabramatta, Hurstville, Revesby, Yagoona, Caringbah, Manly and Surry Hills.

*Section of Special Services.*—Balmain, Hornsby, Newtown, Petersham, Chatswood, Kogarah, Paddington, Ryde, Fairfield, Liverpool, Parramatta, Five Dock and Narrabeen.

These clinics are for the assessment of children up to the age of 5 years who are referred by the Baby Health Centre sister or by other nursing or medical personnel either intra or extra Departmental.

Guidance is offered to parents on the management of the presenting problem and no treatment is given beyond simple counselling. Children requiring further investigation or treatment are referred back to the family practitioner. Routine pre-school medical assessments are also carried out at the request of parents at the clinics staffed by the Section of Maternal and Infant Care and the Section of Child Health.

In 1970, 380 clinic sessions were conducted by the field officers of the Section of Maternal and Infant Care. One thousand four hundred and forty-three children were fully examined; 483 children were reviewed and 312 children were referred for further investigation or treatment. Details of attendances at the Well Baby clinics given in table IV.

### HEALTH SERVICES TO DAY NURSERIES AND PRE-SCHOOL KINDERGARTENS

For many years a health service has been provided for children under school age who attend the Day Nurseries and Pre-School Kindergartens under the auspices of the Sydney Day Nursery and Nursery Schools Association, the Kindergarten Union of New South Wales Incorporated, the Commonwealth Migrant Hostels Ltd and certain local government authorities.

The service provides for an initial assessment of each child enrolled at the centre, and where possible the parent is invited to be present at the examination. A pre-school medical assessment is not comparable in any way to a routine screening examination carried out on entry to primary school.

At the examination each parent is encouraged to discuss any problem that may be causing some concern. Adequate time to interview the parent is essential as it is the most valuable media for the promotion of positive and individual health teaching.

During the year 218 visits were made to the 8 day nurseries and 32 pre-school kindergartens supervised by the section in the metropolitan area. In addition 15 visits were made to 4 child-minding centres conducted by the Commonwealth Hostels Ltd. The pre-school children attending these kindergartens have both parents working full time.

In 1970 a total of 1,887 pre-school children were fully examined or reviewed. Of these 259 were referred for further investigation or treatment and many parents were interviewed concerning the immunization status of their child. Further details given in table V.

During 1970, screening tests for the detection of deafness were introduced as part of the service to the cot rooms of the Sydney day nurseries.

The service was also extended to include pre-school children who attend kindergartens conducted by the Sydney Day Nursery Association, the Kindergarten Union and the Commonwealth Hostels Ltd.

The screening of pre-school children for the detection of deafness is carried out only at the request of a medical officer, general practitioner or pre-school director. Details of results of screening programme given in table VI.

## PRE-SCHOOL TEACHER TRAINING COLLEGES

The close liaison between the section and the pre-school teacher training colleges has continued and during 1970 a course of twenty-four lectures on Health were given to the teacher trainees at the Sydney Kindergarten Training College and ten lectures were given to the final year students at the Nursery School Training College.

## SURVEY OF INBORN ERRORS OF METABOLISM

### Urine Testing Survey—Turner Method

This survey begun in 1964, has continued under the supervision of the Director, Oliver Latham Laboratory, North Ryde Psychiatric Centre. The test is carried out on all babies aged 6 weeks or over and the testing material is distributed free from all Baby Health Centres throughout New South Wales, clinics conducted by the Karitane Mothercraft Society; the Australian Capital Territory Health Service Office, the Royal Far West Children's Health Scheme, the New South Wales Bush Nursing Association, the Royal Flying Doctor Service New South Wales Division, and the cot rooms of the Sydney day nurseries.

A special home visit is made by the Baby Health Centre sister to the parents of babies aged six weeks who are not attending a centre. The purpose of the visit is to distribute the urine testing material and to emphasize the importance of having this test carried out. In addition the sisters at the Baby Health Centres contact parents when a retest is requested by the laboratory. Two thousand four hundred retests were requested during 1970.

Suspected or positive cases of Phenylketonuria are notified direct from the Oliver Latham Laboratory to the nominated family practitioner and arrangements are made for the baby to be admitted to the special unit at the Institute of Child Health, University of Sydney or the Paediatric Unit, The University of New South Wales.

### Guthrie Test

This study, commenced as a pilot study in the latter part of 1966 has continued throughout 1970. At the end of 1970 the Guthrie test had been introduced at twenty-one hospitals in the metropolitan area and thirty-five hospitals in the country.

It is compulsory for all children to have a Guthrie test prior to adoption.

Details of results of "Survey on Inborn Errors of Metabolism" given in table VII.

### Other Inborn Errors of Metabolism

The follow up of other "Inborn Errors of Metabolism" by the Baby Health Centre sisters has continued. Cystine Lysinuria is the subject of a special study by the Oliver Latham Laboratory and during 1970 to assist with the follow up of this study, 1,215 home visits were made.

## PARENT DISCUSSION GROUPS

The New South Wales Association for Mental Health has continued to conduct parent discussion groups in Baby Health Centres.

The programme has now been extended to include discussion groups for parents of children ranging from babies to adolescents. During 1970, 18 discussion groups were held at the following Baby Health Centres:

GyMEA, North Sydney, North Epping (2), Epping, Willoughby (2), Bankstown, Daceyville, North Ryde (2), West Pennant Hills (2), French's Forest, Seaforth, Lane Cove (2), and Yagoona.

## IMMUNIZATION

On 1st July, 1970, a retrospective survey was carried out to determine the immunization status of babies attending the metropolitan Baby Health Centres.

The results of the survey indicated that 93.7 per cent of the children aged 1 year or more at the 1st July had completed three or more immunizations with Triple Antigen and 90.2 per cent had completed three or more immunization with Sabin Vaccine.

Details of the results of the survey given in table VIII.

As a result of the recommendations by the Ad. Hoc. Committee on Immunization, refrigerators have been installed at the following Baby Health Centres in the metropolitan area:

Hornsby, Dee Why, Green Valley, Liverpool, Blacktown, Mt Druitt, Paddington, Parramatta, Randwick and Sutherland.

Supplies of Sabin vaccine will be kept at these centres and the Baby Health Centre sister will dispense the vaccine to families as required. In addition supplies will be available for distribution to the general practitioner upon request. This service will commence early in 1971.

A reminder letter to parents emphasizing the importance of the 15-18 months of age booster doses of Triple Antigen and Sabin Oral Vaccine is at present being printed. In addition a Departmental booklet *Baby's Personal Record* including information on immunization is also being printed and it is anticipated that these will be ready for distribution early in 1971.

### **ROUTINE SCREENING TEST FOR THE DETECTION OF HEARING DEFECTS IN 8-MONTH-OLD BABIES**

During the latter part of 1970 routine screening tests for the detection of hearing defects in 8-month-old babies was incorporated as part of the Baby Health Centre service.

Two nursing sisters from the Section of Child Health experienced in testing babies and pre-school children and with post-graduate qualifications in audiometry arranged and supervised a training programme in the technique of primary screening, for all Baby Health Centre sisters in the metropolitan area.

The training programme commenced in November, 1970, and at the 31st December, sixteen Baby Health Centre sisters at twelve centres had completed their initial training. At the conclusion of the training programme in the metropolitan area early in 1971 it will be extended to include the Baby Health Centre sisters conducting centres in the health districts.

Since the introduction of the training programme, fifty-eight babies have been screened for deafness by the Baby Health Centre sisters and thirty-five babies were screened by the Child Health sisters demonstrating the testing technique. One baby was referred for further investigation.

Further details given in table VI.

### **BABY HEALTH CENTRE STAFFING**

Full establishment was not reached at any stage during the year. However, services were still maintained but not without unavoidable closures for short periods and the reduction of home visiting services.

Although there has been a decrease in permanent and temporary full-time officers this has been partly compensated by an increase in the employment of part-time officers.

The problem of staffing Country Circuits and the recruitment of bond trainees still continues as young potential "permanent" officers are not prepared to undertake the terms of employment at present required by the Department.

During 1970, twenty-five Country Circuits were relieved from the Metropolitan Area and to supply this service shortages resulted in the metropolitan service and home visiting services were drastically curtailed.

The number of available units of staff for relieving ranged from  $4\frac{4}{5}$  to  $14\frac{3}{5}$  during 1970. This was insufficient to cover the relieving requirements of recreation leave, emergency sick leave and to release an adequate number of nurses to attend the In-Service Training Course in Community Nursing which is considered to be of vital importance to the staff if they are to carry out their role in the community. However, despite the staffing shortage, twelve Baby Health Centre sisters successfully completed the In-Service Training Course in 1970 and four attended the refresher course.

The nurse inspector and the acting deputy nurse inspector continued to supervise metropolitan Baby Health Centres during 1970 and 147 visits were made to the centres. In addition 59 special visits were made to centres concerning specific problems.

Details of Baby Health Centre staffing given in table IX.

### **TRAINING AND OBSERVATION VISITS TO BABY HEALTH CENTRES**

During 1970 the section continued to arrange training and observation programmes for the various training authorities as follows:

Medical Students, University of Sydney; Social Work Students, The University of New South Wales; In-Service Training Course Community Nursing; Students from General, Midwifery and Mothercraft Training Schools; the New South Wales Bush Nursing Association; the Sydney Kindergarten Teacher Training College and for Overseas and Interstate Visitors.

Details given in table X.

### **PUBLICATIONS**

The booklet *Healthy Motherhood* was revised during 1970 and a reprint of 200,000 copies ordered. *Our Babies* is undergoing extensive revision and the revised edition will be available for distribution in 1971.

TABLE I—ATTENDANCES AT BABY HEALTH CENTRES 1970  
New South Wales

Year	Births	Individual Attendances	Total Attendances	Nurses	Number of Centres
1969	86,290	157,290	1,096,082	286	447
1970	88,448	167,154	1,126,681	272	442

*Metropolitan Area (including Western Metropolitan Health District)*

Individual Attendances		Total Attendances	
1969	1970	1969	1970
99,608	104,397	684,131	695,837

*Metropolitan Area (excluding Western Metropolitan Health District)*

Individual Attendances		Total Attendances	
1969	1970	1969	1970
(not available)	74,677	(not available)	497,379

Health Districts	Individual Attendances		Total Attendances	
	1969	1970	1969	1970
Western Metropolitan .. .. .	..	29,720	..	198,458
Newcastle .. .. .	15,253	16,821	110,270	117,207
South Coast .. .. .	12,447	13,381	85,535	90,476
Western .. .. .	9,120	9,355	62,209	64,142
North Coast .. .. .	4,762	4,076	35,042	36,539
North Western .. .. .	4,769	6,127	39,352	42,988
Riverina .. .. .	10,103	10,834	67,208	67,103
Broken Hill .. .. .	1,228	1,263	12,335	12,389

TABLE II—ATTENDANCES AT PRE-NATAL CLINICS—1970

Prenatal Clinic	Primiparae		Multiparae		Postnatal	Total Visits	No. of Sessions
	First	Subse-quent	First	Subse-quent			
<i>Metropolitan Area—</i>							
Dee Why .. .. .	56	341	79	487	..	963	69
Manly .. .. .	98	420	94	600	..	1,212	58
Total .. .. .	154	761	173	1,087	..	2,175	127
<i>Western Metropolitan Health District—</i>							
Parramatta (Monday) .. .. .	50	220	122	602	..	994	51
Parramatta (Thursday) .. .. .	56	327	64	386	..	833	54
Liverpool (Tuesday) .. .. .	208	717	324	996	2	2,247	51
Liverpool (Wednesday) .. .. .	20	290	22	615	..	947	51
Green Valley .. .. .	15	35	33	211	..	294	53
Blacktown .. .. .	23	80	59	285	9	456	83
Mt Druitt .. .. .	5	19	22	134	3	183	51
Villawood Migrant Hostel .. .. .	92	247	91	218	7	655	52
Total .. .. .	469	1,935	737	3,447	21	6,609	446
<i>Newcastle Health District—</i>							
Belmont .. .. .	16	81	58	234	21	410	48
Cardiff .. .. .	13	52	29	236	17	347	48
Charlestown .. .. .	5	39	32	259	24	359	48
Total .. .. .	34	172	119	729	62	1,116	144
Grand Total .. .. .	657	2,868	1,029	5,263	83	9,900	717

TABLE III—ATTENDANCES AT PREPARATION FOR PARENTHOOD CLASSES 1970 METROPOLITAN AREA

Metropolitan Area		Course						Total Attendances	Combined Parent Evenings						Total Attendances		
		1	2	3	4	5	6		1	2	3	4	5	6			
Dee Why I	..	15	18	11	16	18	19	97	..	..	..	69	30	43	142		
Dee Why II	..	23	17	16	18	18	21	113	..	..	..	..	..	..	..		
French's Forest	..	20	15	13	15	18	23	104	..	..	50	..	50	61	161		
Drummoyne	..	15	12	14	17	19	22	99	..	..	..	..	..	..	..		
Randwick	..	10	9	10	5	8	7	49	..	..	..	..	..	..	..		
Hurlstone Park	..	15	12	12	12	7	11	69	..	..	..	..	..	..	..		
Revesby..	..	8	8	11	10	15	16	68	..	..	..	..	..	..	..		
South Hurstville	..	14	14	10	16	16	18	88	..	..	..	..	..	..	..		
Jannali ..	..	13	13	15	14	15	12	82	..	..	..	..	..	..	..		
Cronulla	..	22	24	23	19	25	33	146	..	..	..	25	65	40	130		
Total ..	..	155	142	135	142	159	182	915	..	..	50	94	145	144	433		
Western Metropolitan Health District																	
Parramatta I	..	25	25	20	21	19	27	137	12	45	30	26	32	61	206		
Parramatta II	..	27	24	23	21	26	27	148	..	22	21	26	13	..	82		
Blacktown I	..	21	36	20	24	15	24	140	..	..	40	56	43	71	210		
Blacktown II	..	..	..	19	20	19	22	80	..	..	..	..	..	..	..		
Liverpool	..	19	26	22	21	27	26	141	..	..	50	56	20	41	167		
Green Valley	..	17	11	10	14	14	13	79	..	..	..	..	..	..	..		
Training School for Girls	..	8	..	8	..	8	..	24	..	..	..	..	..	..	..		
Total ..	..	117	122	122	121	128	139	749	12	67	141	164	108	173	665		
Grand Total	..	272	264	257	263	287	321	1,664	12	67	191	258	253	317	1,098		

TABLE IV—WELL BABY CLINIC STATISTICS 1970—SECTION OF MATERNAL AND INFANT CARE

Well Baby Clinic	Attendances				Referred From		Referred To			
	No. of Sessions	New Cases	Review Cases	Total	Baby Health Centre	Other	Hospital	Child Health Centre	General Practitioner	Other
Auburn	48	192	32	224	102	80	7	6	19	6
Blacktown	47	136	122	258	59	1	4	2	17	4
Campsie	48	177	57	234	129	..	16	7	27	10
Dee Why	45	153	51	204	102	3	8	..	22	7
Dulwich Hill	39	132	34	166	99	..	10	6	7	1
Epping ..	41	223	66	289	169	14	2	6	18	..
French's Forest I	50	190	70	260	74	36	1	2	42	1
French's Forest II	10	29	12	41	24	2	..	..	6	1
Green Valley	12	40	..	40	40	..	6	3	1	1
Lane Cove	40	171	39	210	54	2	7	10	18	1
Total ..	380	1,443	483	1,926	852	138	61	42	177	32

TABLE IV—WELL BABY CLINIC STATISTICS 1970—SECTION OF CHILD HEALTH—continued

Well Baby Clinic	Attendances				Referred From		Referred To			
	No. of Sessions	New Cases	Review Cases	Total	Baby Health Centre	Other	Hospital	Child Health Centre	General Practitioner	Other
Avalon ..	47	181	144	325	129	4	1	..	16	15
Bankstown ..	47	212	41	253	123	15	4	11	33	11
Cabramatta ..	44	231	37	268	167	16	10	6	35	1
Caringbah ..	41	150	45	195	89	5	7	3	17	3
Gladesville ..	47	182	109	291	90	..	7	21	48	8
Granville ..	44	185	22	207	109	..	..	15	15	6
Hurstville ..	49	181	37	218	151	3	2	7	21	41
Manly ..	54	235	140	375	172	8	20	6	26	6
*Newtown ..	4	11	4	15	5	..	1	1	3	1
Mt Druitt ..	49	253	157	410	108	18	22	17	15	5
Randwick ..	50	148	28	176	97	14	13	2	6	29
Revesby ..	48	248	15	263	175	..	2	3	8	5
Surry Hills ..	50	215	106	321	188	..	47	5	5	3
Sutherland ..	47	159	100	259	155	11	14	6	17	14
Turramurra ..	52	248	45	293	155	46	3	2	32	10
Yagoona ..	25	98	28	126	68	..	..	1	11	4
Total ..	698	2,937	1,058	3,995	1,981	140	153	106	308	162

• Transferred to Section Special Services.



TABLE V—MEDICAL EXAMINATIONS 1970—DAY NURSERIES—PRE-SCHOOL KINDERGARTENS—CHILD MINDING CENTRES MIGRANT HOSTELS

							Number of Schools	Number of Visits	Full Examinations	Review Examinations	Parent Interviews	Letters including reminder re immunisations	Referred for further investigation or treatment including immunisation
Day Nurseries	..	..	..	..	..	..	8	58	306	141	52	133	68
Pre-School Kindergartens	..	..	..	..	..	..	32	160	1,091	248	919	75	177
Child Minding Centres Migrant Hostels	..	..	..	..	..	..	4	15	86	15	6	47	14
Total..	..	..	..	..	..	..	44	233	1,483	404	977	255	259

TABLE VI—VISION AND HEARING SCREENING TESTS—DAY NURSERIES—PRE-SCHOOL KINDERGARTENS—CHILD MINDING CENTRES MIGRANT HOSTELS

	Under 1 year of age	1-5 years	Under 3 years	3-5 years	Over 5 years	Hearing Defect	Vision Defect	Referred for Further Investigation	Received Hearing Aid
Day Nurseries	52	290	149	141	1	36	2	32	..
Child Minding Centres Migrant Hostels	..	209	43	166	4	15	10	25	..
Special Testing Referrals Medical Officers, Directors, Pre-school Kindergartens	6	36	Breakdown Figures not available	Breakdown Figures not available	29	11	..	11	3
Total	58	535	..	..	34	62	12	68	2

TABLE VII—STATISTICS—SURVEY OF INBORN ERRORS OF METABOLISM

Urine Testing Survey—Turner Method			
Total number of tests carried out from 1-1-70 to 31-12-70	=	N.S.W. 71,239	A.C.T. 2,979
		Total = 74,218.	
Confirmed cases of Phenylketonuria for 1970	=	N.S.W. 4	A.C.T. 1.
		Total = 5.	
Incidence of Phenylketonuria for 1970 ..	=	N.S.W. $\frac{1}{17,810}$	A.C.T. $\frac{1}{2,979}$
		Overall incidence 1970 $\frac{1}{14,844}$ .	
Total Number of tests carried out since 1-3-64 to 31-12-70	=	N.S.W. 425,913.	A.C.T. 10,372.
		Total = 436,285.	
Confirmed cases of Phenylketonuria since 1964	=	N.S.W. 24.	A.C.T. 1.
Incidence of Phenylketonuria since 1964	=	N.S.W. $\frac{1}{17,746}$	A.C.T. $\frac{1}{10,372}$
		Overall incidence since 1964 $\frac{1}{17,451}$ .	
Guthrie Test for Raised Blood Phenalanine			
Total number of tests carried out from 1-1-70 to 31-12-70	=	27,605.	
Number of positive cases detected in 1970	=	3.	
Incidence	=	$\frac{1}{9,202}$ .	
Total number of tests carried out since inception of survey	=	77,564.	
Number of positive cases detected since inception of survey	=	14.	
Incidence	=	$\frac{1}{5,540}$ .	

TABLE VIII—STATISTICS—IMMUNIZATION SURVEY 1970—METROPOLITAN BABY HEALTH CENTRES

Child Health Centre Area		Number of babies aged 1 year or more at 1-7-70	Completed 3 or more Triple Antigen	Completed 3 or more Sabin Vaccine	Commenced Triple Antigen but incomplete	Commenced Sabin Vaccine but incomplete	Not commenced Triple Antigen or C.D.T.	Not commenced Sabin Vaccine
Chatswood ..	..	2,887	2,813 (97·4%)	2,769 (95·9%)	39 (1·4%)	81 (2·8%)	24 (0·8%)	29 (1·0%)
Ryde... ..	..	2,198	2,088 (95·0%)	1,978 (90·0%)	109 (5·0%)	147 (6·7%)	2 (0·1%)	7 (0·3%)
Queenscliff ..	..	3,302	3,247 (98·3%)	3,145 (95·2%)	47 (1·4%)	140 (4·2%)	12 (0·4%)	25 (0·8%)
Eastern Suburbs	..	2,165	1,758 (81·2%)	1,646 (76·0%)	121 (5·6%)	195 (0·9%)	121 (5·6%)	145 (6·7%)
Forest Lodge	..	2,812	2,667 (94·8%)	2,605 (92·6%)	81 (2·9%)	121 (4·3%)	46 (1·6%)	62 (2·2%)
Bexley ..	..	2,557	2,448 (95·7%)	2,317 (90·6%)	46 (1·8%)	103 (4·0%)	61 (2·4%)	76 (3·0%)
Yagoona ..	..	2,529	2,460 (97·3%)	2,362 (93·4%)	37 (1·5%)	107 (4·2%)	40 (1·6%)	60 (2·4%)
Sutherland ..	..	2,202	1,931 (87·7%)	1,739 (79·0%)	177 (8·0%)	359 (16·3%)	58 (2·6%)	78 (3·5%)
Parramatta ..	..	2,404	2,256 (93·8%)	2,226 (92·6%)	33 (1·4%)	69 (2·9%)	38 (1·6%)	57 (2·4%)
Cabramatta	..	1,844	1,769 (95·9%)	1,735 (94·1%)	36 (2·0%)	59 (3·2%)	33 (1·8%)	35 (1·9%)
Blacktown ..	..	2,313	2,083 (90·1%)	2,038 (88·1%)	58 (2·5%)	55 (2·4%)	165 (7·1%)	170 (7·3%)
Camden/Campbelltown	..	516	467 (90·5%)	445 (86·2%)	10 (1·9%)	57 (11·0%)	5 (1·0%)	5 (1·0%)
Total ..	..	27,729	25,987 (93·7%)	25,005 (90·2%)	794 (2·9%)	1,493 (5·4%)	605 (2·2%)	749 (2·7%)

TABLE IX—STAFFING STATISTICS 1970

Staffing		Appointments		Resignations		Resignations of Permanent Officers	
Establishment	..	Permanent	..	Permanent	..	Retirement at 60 years of age	5
Employed 31-12-70	..	Temporary	..	Temporary	..	Compulsory retirement 65 years	2
Permanent Officers	..	Part-Time	..	Part-time	..	Retirement on Medical grounds	2
Temporary Officers	..	Increased Units	..	Deceased Units	..	Deceased	1
Part-Time Officers	..		..		..	Transfer to Assistant Nurse	1
		Total	..	Total	..	Inspector	1
						Other reasons	11
						Total	22

Periods of relief Country Circuits		Replacement of Staff Country Circuits		
Health District		Health Districts		Directed from Metropolitan Area
North Western	..	North Western	..	2
North Coast	..	North Coast	..	..
Newcastle	1	Newcastle	..	1
South Coast	1	South Coast	..	2
Riverina	7	Riverina	..	2
Western	11	Western	..	3
	4	Broken Hill	..	1
Total	25	Total	..	11

Periods of relief Country Circuits		Number of Periods		Inter Transfer
North Western	..	..	..	1
North Coast	..	..	..	..
Newcastle	..	..	..	2
South Coast	..	..	..	..
Riverina	..	..	..	1
Western	..	..	..	1
Total	..	..	6	5

TABLE X—TRAINING AND OBSERVATION PROGRAMMES

	Number of Students	Number of cases arranged by Baby Health Centre Sisters	Number of Home Visits arranged by Baby Health Centre Sisters
Fifth year medical students University of Sydney .. .. .	72	118	—
General Nursing Students .. .. .	93	—	—
Midwifery Nursing Students .. .. .	43	—	—
Psychiatric Trainees .. .. .	15	—	—
Post Graduate Mothercraft Students .. .. .	70	96	70
New appointees to New South Wales Bush Nursing Service .. .. .	7	—	—
Students' Nursing Education Centre Prince of Wales Hospital .. .. .	6	—	—
Nursing Aides .. .. .	11	—	—
Administration Student and Social Work Students—University of New South Wales .. .. .	19	—	—
Overseas and Interstate Visitors .. .. .	2	—	—
Council of Social Services .. .. .	13	—	—
Teacher Trainees—Kindergarten Union of New South Wales .. .. .	74	—	—
In-Service Training Students .. .. .	17	29	—
Total .. .. .	442	243	70

DIVISION OF MATERNAL AND PERINATAL STUDIES

Director: MAUREEN GRATTAN-SMITH, M.B., B.S., D.P.H.

Location: 86-88 George Street North, Sydney

The staff consists of two Medical Officers and one clerical officer.

HISTORICAL

The Division of Maternal and Perinatal Studies is a new division in the New South Wales Department of Health and was established in January, 1970, to study the mortality and morbidity in both mother and baby associated with pregnancy, labour, and the puerperium. The maternal component is taken until 6 weeks after the birth of the child and the perinatal covers stillbirths and neonatal deaths. A stillbirth is defined as the product of conception, weighing not less than 400 grammes and/or not less than 20 weeks gestation. A neonatal death is the death of an infant within 28 days following birth.

New South Wales was the first State in the Commonwealth of Australia to notify stillbirths compulsorily in 1935 and the first to establish a Maternal Mortality Committee in 1939. Over the years the Committee studied all deaths in pregnant and parturient women and made recommendations to improve facilities and services which would assist in lowering the death rate in mothers. It also advised on education of medical graduates and undergraduates and the training of paramedical staff, particularly nursing personnel. In 1958 the Special Medical Committee Investigating Maternal Mortality, as it was then called, conducted a state-wide infant mortality survey to determine the factors which might be responsible for the high infant death rate in New South Wales as opposed to some other States, and to highlight areas where improvement in facilities and services were needed. The aims of the survey were not fully achieved but it became apparent that at least one-third of the death certificates were useless and the remainder gave inadequate information. The survey showed that the deaths in the 1st month of life outnumbered those in the other 11 months by three to one and therefore the infant mortality rate was not a true reflection of standards of maternal and infant care. Recommendations were made, including the establishment of a Paediatric Consultant Panel and this was subsequently introduced and reference will be made to this later.

In 1962, the first perinatal study was conducted on a voluntary basis followed by annual surveys up to 1969, when the Compulsory Perinatal Death Certificate was introduced by an amendment to the Registration of Births, Deaths and Marriages Act. In the period from 1962 to 1968, with the assistance of the Commonwealth Bureau of Census and Statistics, and through the Maternal and Child Health Committee of the National Health and Medical Research Council, various types of perinatal death certificates were tested in the New South Wales surveys.

Evidence of death of the child was first based on “breathing” but this had to be abandoned as the interpretation of “breathed” or “didn’t breathe” varied widely and was a subjective finding based on the doctor who delivered the baby. Eventually, “heart beat” was accepted and although both now appear on the certificate, for statistical purposes, only “heart beat” is used.

At the same time the definitions of “stillbirth” and “neonate” were discussed with representatives of all the Australian States until agreement was reached and the definitions stated earlier are now uniform for all States. This permits of comparison between the States and the production of Australian mortality figures. Because it is more convenient and practical for people conducting studies in obstetric hospitals to use the 7-day period after birth for neonatal deaths, rather than the 28 days, records are maintained for both groups to permit comparison. The 28-day period however, is the accepted national definition of “neonatal” and conforms with the World Health Organization. Throughout all these studies the International Classification of Diseases was used for coding of deaths, both maternal and perinatal. When planning the eighth revision of the I.C.D. the World Health Organization requested advice from all countries. The Commonwealth Bureau of Census and Statistics drew up an interim list of categories and codings which permitted the cause of death in the child to be coded to the morbid condition in the mother. Whilst testing the format and context of the proposed Compulsory Perinatal Death Certificate this statistical classification was used. Recommendations were subsequently made to the World Health Organization and most of these were accepted and included in the Eighth Revision of the International Classification of Diseases.

Having obtained agreement among the States on definitions, content, and broadly on the format of the Compulsory Perinatal Death Certificate, steps were immediately made to amend the Registration of Births, Deaths and Marriages Act to replace the Compulsory Stillbirth Certificate with a Compulsory Perinatal Death Certificate and this became law in New South Wales on 1st January, 1969.

After the initial dramatic drop between 1935 and 1945, the maternal deaths in New South Wales had steadily decreased until the present day (see figure 1). In 1970 there were 29 deaths considered by the Maternal and Perinatal Mortality Committee, of which 20 were classified as maternal. This small number of deaths can be considered in great detail. The number of perinatal deaths however, for 1970 were 2,463 of which there were 1,154 stillbirths, and 1,309 neonatal deaths. The method used so successfully to study the maternal deaths could not be used for perinatal because of the large number of deaths so other methods had to be found.

The perinatal field is important, particularly as the mortality represents only the “tip of the iceberg” and the great mass of morbidity—“the near misses”—represents a tragic load on the parents and an economic burden to the community. Hospitals for the physically and mentally handicapped, care for many, whose basic handicap is related to their experience during pregnancy and childbirth. The many other organizations for partially handicapped also care for patients whose defect can be related to perinatal morbidity. For this reason investigation into perinatal deaths becomes essential. In January, 1970, the Division of Maternal and Perinatal Studies was established. This division works under the auspices of the original Maternal Mortality Committee, to which has been added two neonatal paediatricians and is now known as the Maternal and Perinatal Mortality Committee.

## BASIC STATISTICAL DATA

Table 1 sets out the basic statistics relative to the field of work of this division for New South Wales for 1969 and 1970.

## MATERNAL DEATHS PER 1000 LIVE BIRTHS

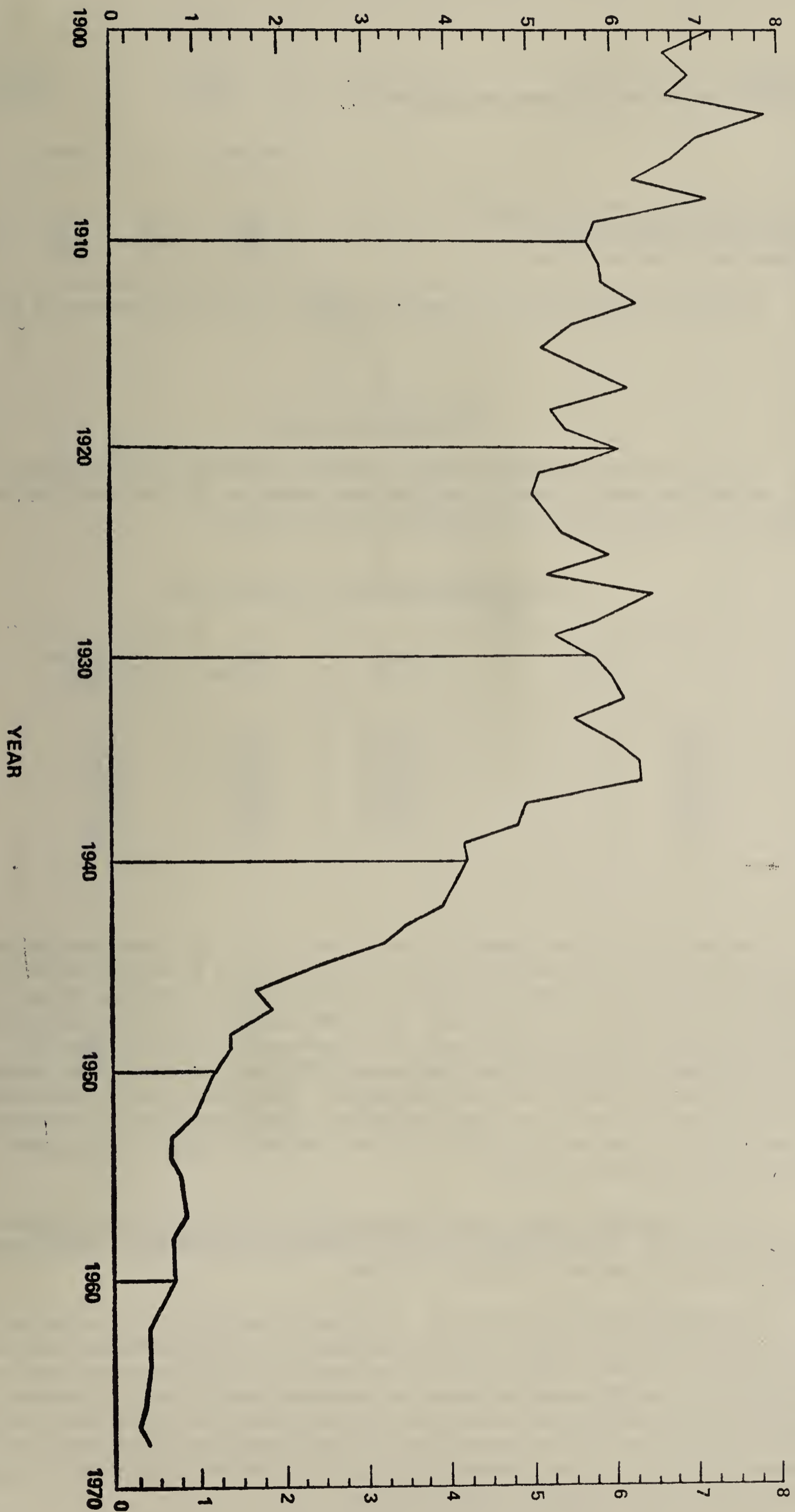


Figure 1

TABLE 1—NEW SOUTH WALES STATISTICS, 1969 AND 1970

	1969		1970	
	86,036		88,448	
	87,116		89,602	
Live births	..	..	..	..
Total births	..	..	..	..
Crude birth rate (live births per 1,000 mean population)	..	..	..	..
	Number	Rate	Number	Rate
Maternal mortality rate (per 1,000 total births)	15	0.17	22	0.25
Infant mortality rate (per 1,000 live births)	1,625	18.89	1,743	19.71
Stillbirth rate (per 1,000 total births)	1,080	12.40	1,154	12.88
Perinatal mortality rate (per 1,000 total births)	2,315	26.57	2,463	27.49

The stillbirth and perinatal mortality figures are based on the new definitions. Stillbirths of 20 weeks gestation or 400 grammes weight, live births and neonatal deaths on presence of heart beat at birth.

CRUDE BIRTH RATE

The crude birthrate for the State of New South Wales has fluctuated as it has in other countries over the last three decades. Specific years have been selected and the mean population, total live births and the crude birth rates for these years are set out in table 2.

TABLE 2—CRUDE BIRTHRATE 1934–70 (N.S.W.)

Year					Mean Population	Total Live Births	Crude Birth Rate per 1,000 Population
1934	..	..	..	..	2,623,717	43,335	16.52
1947	..	..	..	..	2,983,810	69,398	23.26
1957	..	..	..	..	3,624,311	79,456	21.92
1967	..	..	..	..	4,309,068	78,841	18.30
1968	..	..	..	..	4,387,400	81,696	18.62
1969	..	..	..	..	4,479,400	86,036	19.21
1970	..	..	..	..	4,575,100	88,448	19.33

The year 1934 is chosen because this was the height of the great depression and the crude birthrate reached an all time low of 16.52. The second year chosen is 1947 which characterizes the “post-war baby boom” when the crude birth rate reached 23.26. Over the next 10 years the rates remained fairly even and in 1957 was 21.92. From 1961 until 1967 there was a steady decrease, no doubt due to the introduction of better methods of contraception, particularly “The Pill”. In 1967 the crude birthrate was 18.30 and from that date until 1970 there has been a steady increase. So that in 1970, we have reached a rate of 19.3 (see figure 2). The number of births in New South Wales in 1970 was 88,448, which was the highest yet and this second “baby boom” is attributable to the present parents who were the “baby boom” of the post-war period and this is placing great pressure on the obstetric facilities in the State.

In New South Wales there is no domiciliary midwifery, all babies are born in hospitals except for the odd accident. Up to 1957 there were some domiciliary deliveries and in that year there were 400, representing 0.5 per cent of all births in the State.

No records have been kept since then. In the past the period of stay in hospital was between 10 to 14 days but today this period has been reduced and in some hospitals is now down to 5 days or sometimes to 48 hours. This is because of the inadequate number of obstetric beds available, particularly in the rapidly developing fringe of the metropolitan area of Sydney. Community nursing care and domestic assistance for the mother on her return home is poor in this State. Discharging mothers after 48 hours or 3 days presents a problem which must lead to a lowering of standard of maternal and infant care, unless adequate facilities are made available for longer stay in hospital, or assistance within the community is greatly improved.



Figure 2—Crude Birthrate—Total live births per 1,000 mean population, 1956–1970

## EXNUPTIAL BIRTHS

This picture is further complicated by the steady increase in the birth of exnuptial children (see table 3).

TABLE 3—LIVE BIRTHS OF EXNUPTIAL CHILDREN, 1934–70 (N.S.W.)

Year					Total Live Births Exnuptial	Percentage of Total Live Births	Rate per 1,000 Population
1934	..	..	..	..	2,069	4.77	.79
1947	..	..	..	..	2,783	4.01	.93
1957	..	..	..	..	3,438	4.33	.95
1967	..	..	..	..	6,300	7.99	1.46
1968	..	..	..	..	6,622	8.11	1.51
1969	..	..	..	..	6,860	7.97	1.53
1970	..	..	..	..	7,455	8.43	1.63

The major increase occurred in the early 1960's and has continued until the present day, when the total number of exnuptial children in 1970 was 7,455, representing 8.43 per cent of the total live births for the State, and a rate of 1.63 per 1,000 of population. Thus one in every twelve births in New South Wales is exnuptial and although a small number of these children may subsequently be cared for by the parents marrying, the great majority will be in need of special care. Facilities for unmarried mothers who keep their babies are poor and if the rate continues to increase as it has done in the last 4 years, serious consideration will need to be given to the standards of health which will be obtained by the children who are retained by their mothers, who are not married. The pattern of this increase follows that in other countries, where it has been recognized that, in spite of a far greater knowledge and much better methods of contraception, more exnuptial children are born each year. Special attention should be paid to the great need for education of the adolescent with stress laid on adequate contraception.

## MATERNAL AGE AND PARITY

The number of confinements in relation to maternal age is shown in figure 3 and this illustrates the general drop in births to all age groups in the 1960's, and the increase, particularly to the under 30 years of age group after 1965. It is comforting to realise that the number of confinements of women over 30 years of age has continued to drop. Similar results are obtained when parity is taken against the number of confinements and this is illustrated in figure 4. The number of confinements to multiparous women has steadily dropped and continues to do so, whereas the number of confinements to women of para nil or para one have continued to increase. This explains the increase in the crude birth rate but the distribution of these births, according to age and parity, is satisfactory.

## ABORTION

Abortion is still a major cause of maternal death in this and other countries. There are no official figures for either legal or illegal abortions in this State. It is known however, that more legal abortions are being carried out for medical reasons now than previously. Further there are a large number of illegal abortions and one can only ponder on the problem of the failure of adequate family planning and contraceptive campaigns. In countries where abortion laws have been modified, figures show that half of the legal abortions are carried out on married women. There is a need for education not only in the young but also of childbearing women of all age groups to minimize the need for abortion and to face the problem of control of population.

## MORTALITY RATES

## Maternal Mortality

Figure 1 showed clearly the rapid and significant drop in maternal death rates from 1,900 up till today. The reduction of maternal mortality was swift and effective mainly because it was dominated by a single cause, infection, which responded dramatically to specific treatment. Before 1935 the year of the introduction of sulphonamides, 1 out of every 200 pregnancies resulted in the death of the mother and the infant mortality was also high because it too was dominated by infection. Figure 5 demonstrates clearly that the greatest saving of infant life has been achieved in the period from the 1st month of life to the end of the 12th month, the post-neonatal period. The fall has been less in the 1st month (neonatal period) and particularly in the first 7 days of life. Today for every one post-neonatal death, there are three neonatal deaths. Eighty per cent of infant deaths have their origin in causes which are present at or develop shortly after birth and a closer examination of post-neonatal deaths will demonstrate that 40 per cent can be traced back to these same causes.

Wastage of foetal life received comparatively little attention until quite recently because maternal and child health services were preoccupied with the problem of maternal and infant mortality. The number of maternal deaths is low in New South Wales but the foetal and neonatal loss is high. These two make up the perinatal period so that today attention is focused particularly on the deaths as stillbirths and of newly born babies. Table 4 shows the number of deaths and the rates for live births, maternal, infant, neonatal, stillbirths, and perinatal deaths for the years 1940 to 1970.

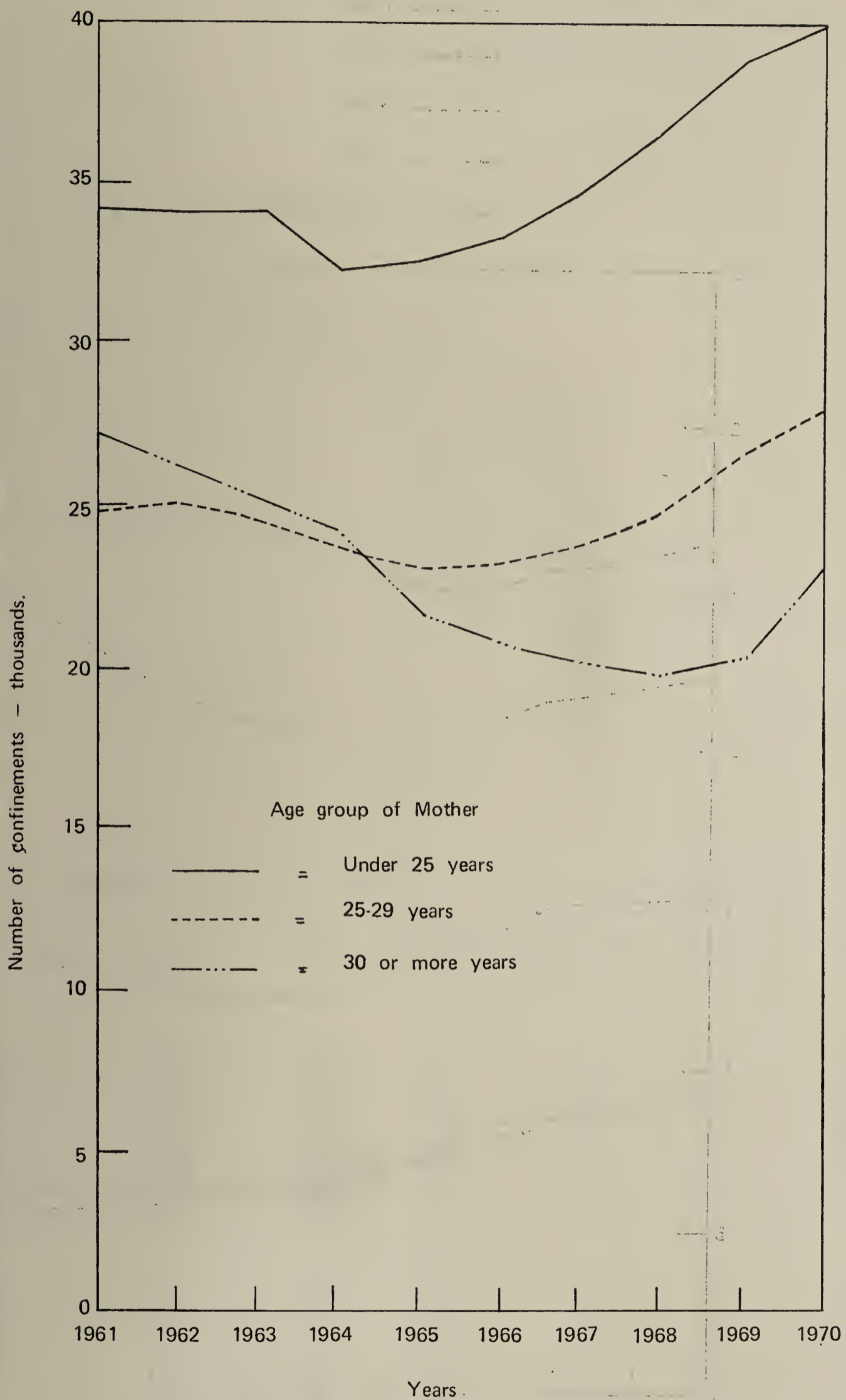
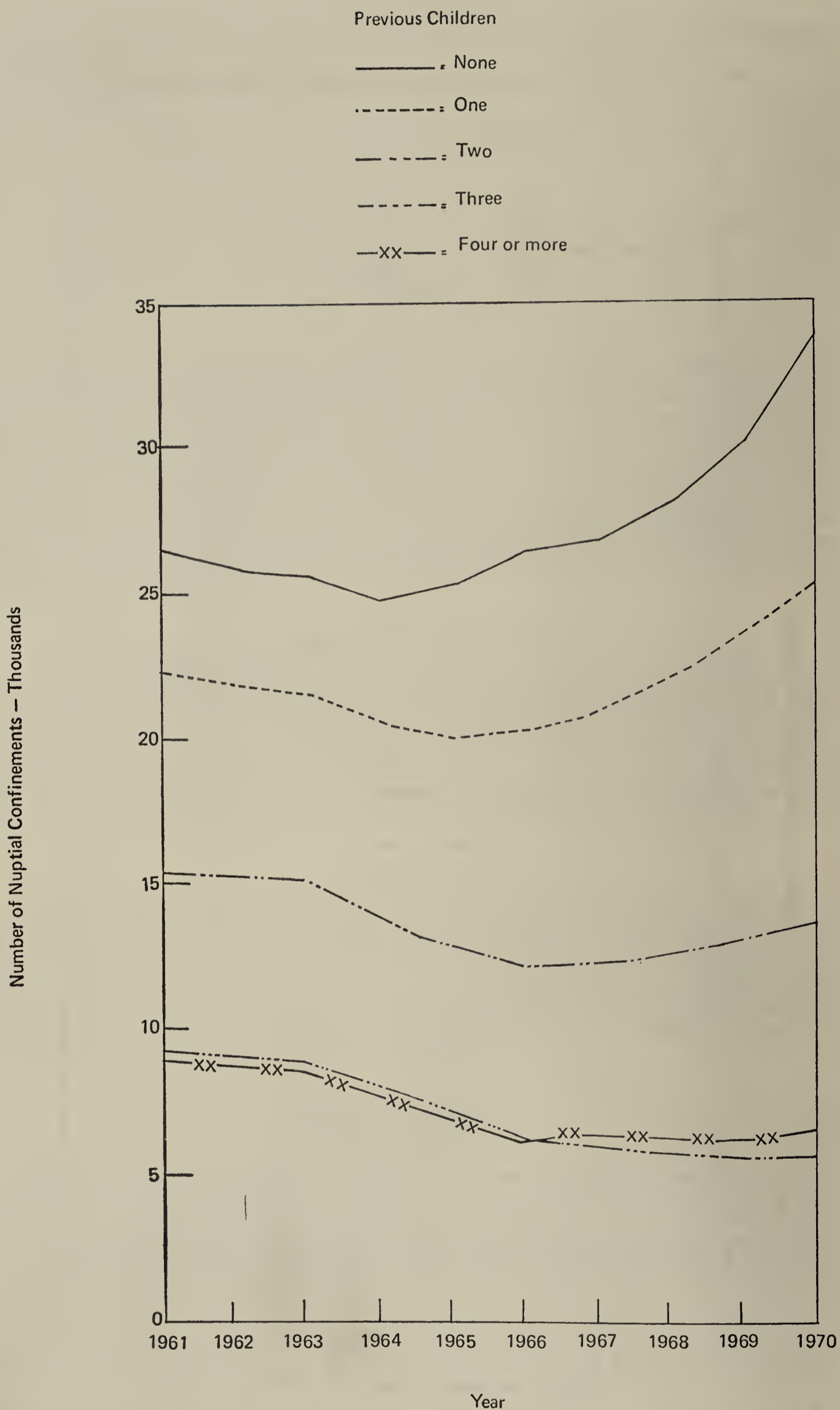


Figure 3. Confinements to mother by Age Group



**Figure 4**  
**Nuptial Confinements\***  
 Previous children of existing marriage†

\* Including nuptial confinements resulting in stillborn children.  
 † Including live born children legitimated by marriage.

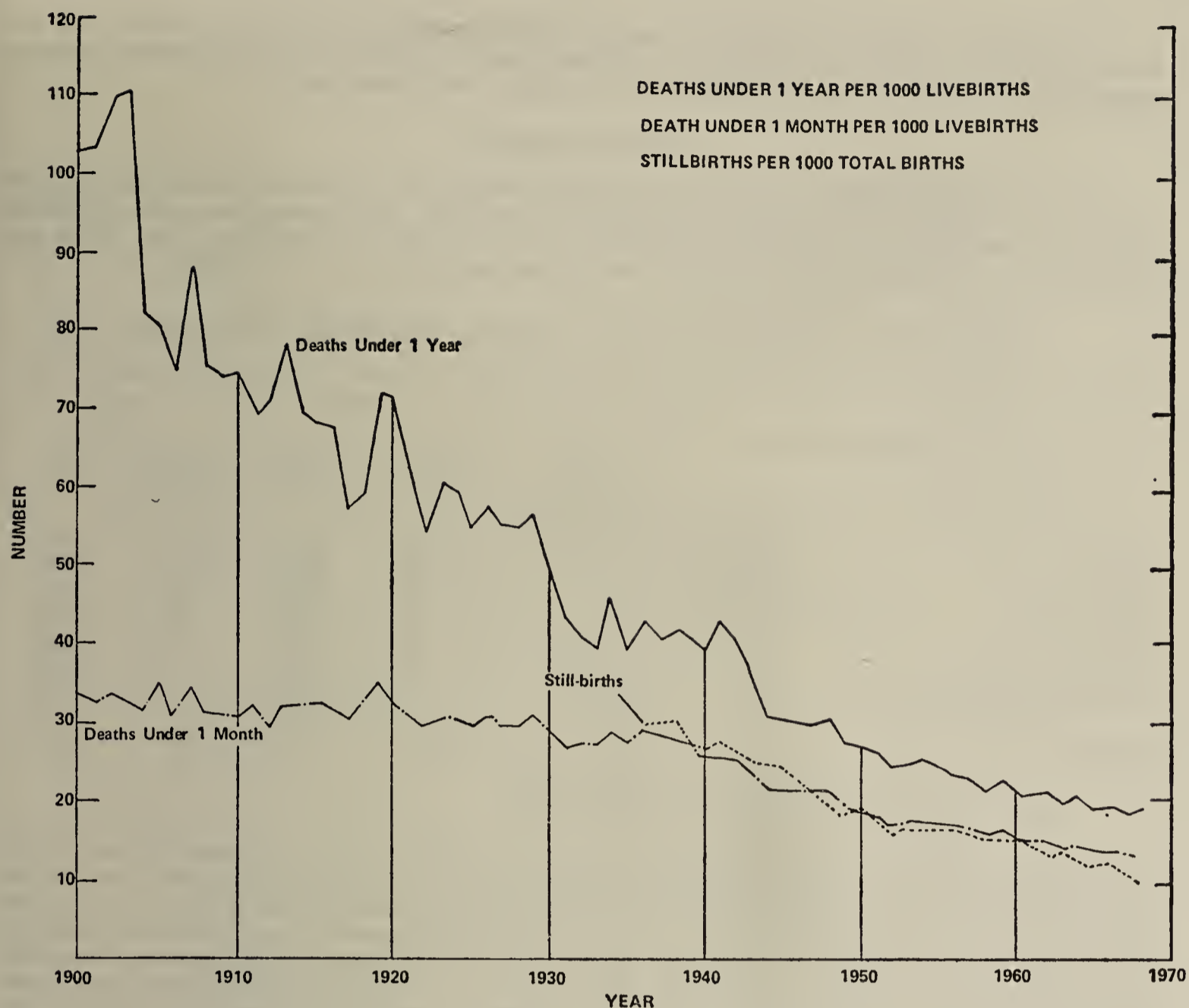


Figure 5

TABLE 4—SUMMARY OF LIVE BIRTHS AND MATERNAL, FOETAL, AND INFANT DEATHS 1940–70 (N.S.W.)

Year	Live Births	Maternal Deaths (a)	Deaths Under 1 Year of Age Infant	Deaths Under 28 Days of Age Neonatal	Stillbirths (b)	Perinatal Deaths (c)
			Number			
1940 .. ..	49,382	209	1,927	1,263	1,342	2,605
1945 .. ..	61,662	139	1,889	1,344	1,540	2,884
1950 .. ..	71,592	80	1,936	1,345	1,406	2,751
1955 .. ..	74,407	55	1,850	1,288	1,243	2,531
1960 .. ..	81,983	56	1,735	1,250	1,261	2,511
1965 .. ..	78,069	25	1,492	1,087	947	2,034
1968 .. ..	81,696	28	1,525	1,123	806	1,929
1969 .. ..	86,036	15	1,625	1,235	1,080	2,315
1970 .. ..	88,577	22 (g)	1,743 (g)	1,308 (g)	1,155 (g)	2,463 (g)
			Rate			
	(d)	(e)	(e)	(e)	(f)	(f)
1940 .. ..	17.78	4.23	39.02	25.58	26.46	51.36
1945 .. ..	21.14	2.25	30.63	21.80	24.37	45.63
1950 .. ..	22.24	1.12	27.04	18.79	19.26	37.69
1955 .. ..	21.30	.74	24.86	17.32	16.43	33.46
1960 .. ..	21.38	.68	21.16	15.25	15.15	30.16
1965 .. ..	18.71	.32	19.11	13.92	11.98	25.74
1968 .. ..	18.64	.34	18.67	13.75	9.77	23.28
1969 .. ..	19.21	.17	18.89	14.35	12.40	26.57
1970 .. ..	19.36	.25 (g)	19.71 (g)	14.77 (g)	12.87 (g)	27.45 (g)

(a) Including criminal abortion.

(b) Until the end of 1968, a stillborn child was defined as "any child of 7 months gestation or over not born alive and includes any child not born alive which measures at least 14 inches, but does not include any child which has actually breathed."

As from 1st January, 1969, a stillborn child means "a child who (a) is of at least 20 weeks gestation, or at least 400 grammes weight at delivery and (b) has not breathed after delivery." For statistical purposes the presence of a heart beat is the criterion of life.

(c) Stillbirths plus neonatal (under 28 days of life) deaths.

(d) Number per 1,000 mean population.

(e) Number per 1,000 live births.

(f) Number per 1,000 total births (live and still).

(g) The figures for 1970 are provisional and subject to confirmation.

Attention is drawn to the apparent rise in stillbirths, neonatal, and perinatal death rates but this is due to the alteration in definition of stillbirths from 28 weeks to 20 weeks gestation and the acceptance of "heart beat" as the criterion of "born alive" and "born dead".

Perinatal Mortality

The perinatal mortality rates for the Australian States and Territories are not yet available for 1970, but table 5 gives these rates for the years 1968 and 1969. The figures shown are not directly comparable because of the variation in definitions and the method of collecting data. With the standardization of definitions from 1971 on, comparable statistics should be available.

TABLE 5—PERINATAL MORTALITY RATES, AUSTRALIA AND STATES, 1968 AND 1969

State or Territory	1968		1969	
	Number	Rate	Number	Rate
New South Wales.. .. .	1,929	23.28	2,092	24.08
Victoria .. .. .	1,480	20.86	1,538	21.42
Queensland .. .. .	885	24.89	837	22.67
South Australia .. .. .	473	22.08	456	20.55
Western Australia .. .. .	473	23.98	525	25.05
Tasmania .. .. .	169	20.13	164	19.05
Northern Territory .. .. .	91	42.86	77	33.35
Australian Capital Territory .. .. .	55	20.61	70	22.54
Australia .. .. .	5,555	22.83	5,759	22.79

These figures are based on stillbirths being of 28 weeks or more gestation.

Maps 1A and 1B show the distribution of perinatal mortality rates in statistical divisions of the State of New South Wales, the first map covering the years 1963 to 1965 and the second covering the years 1966 to 1968. Map 2 shows a breakdown of the Sydney statistical division into local government areas and gives perinatal mortality rates for each area. Tables covering these figures are appended to this report. In certain areas there have been marked improvements in the perinatal mortality rates between the two triennia 1963-5 and 1966-8. A few of the statistical divisions have varied slightly between the two triennia but not enough to affect the results to any significant degree. The area called the Southern Tablelands has shown a perinatal drop from 30.61 to 18.39 in this 6-year period and the drop is consistent over the period and the numbers are sufficiently large that small alterations could not possibly have had this dramatic effect. It is also worthwhile to note that Newcastle, which has long been criticized for its higher infant mortality rate than other areas in the State, has over the last 10 years dropped its infant mortality rate significantly and it is better now than the rate for the State and this improvement has been consistent since 1957. The same applies to the perinatal mortality rate in Newcastle and one would like to think that the enthusiasm of the practitioners in the area resulting in the establishment of the Perinatal Care Committee in Newcastle in 1959 contributed to this remarkable improvement in figures.

CAUSES OF PERINATAL LOSS

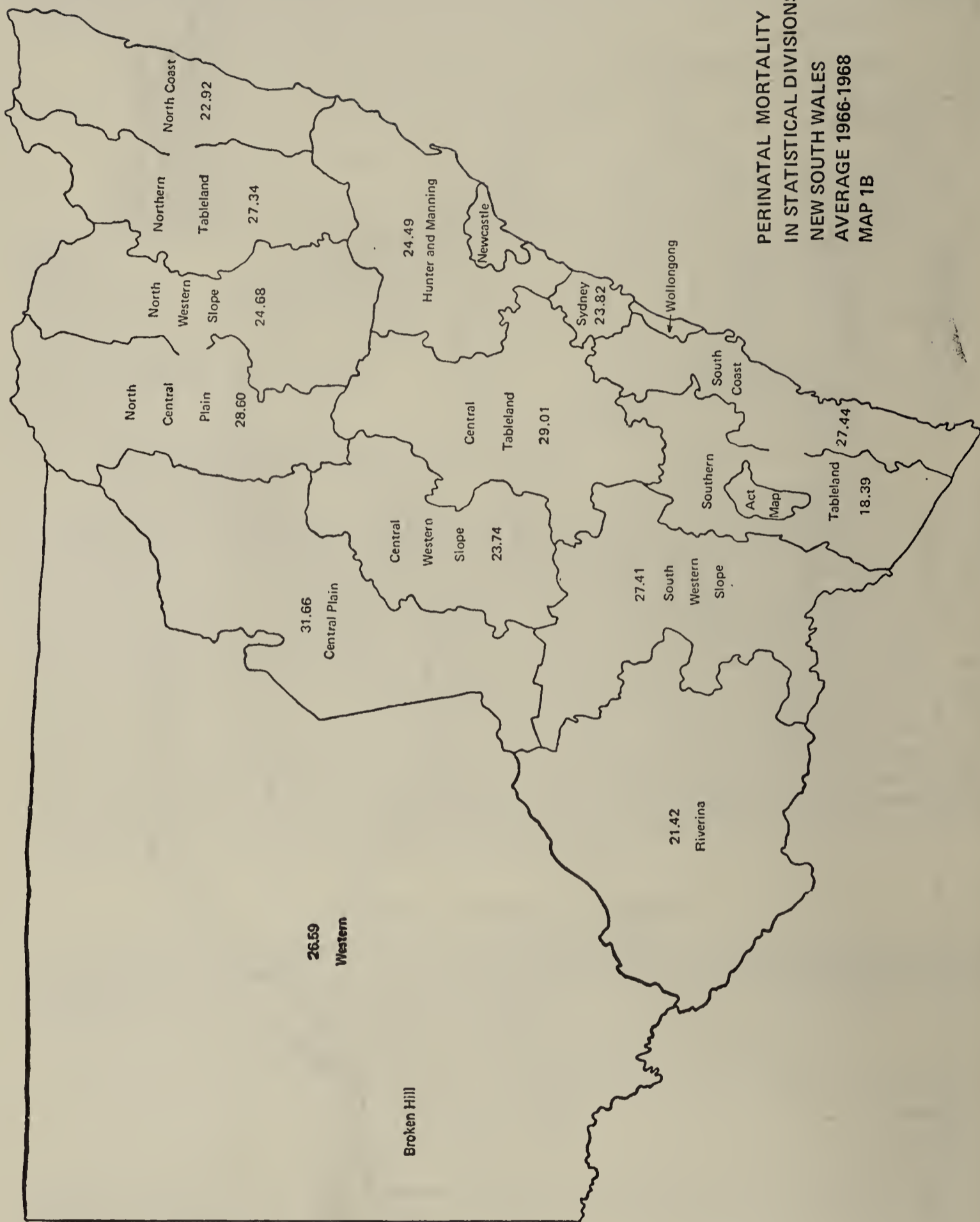
The cause of death for stillbirths and neonatal deaths, i.e., all perinatal deaths is referred back to the morbid condition of the mother since the publication of the Eight revision of the international Classification of Diseases. Table 6 shows the causes of death for New South Wales for 1969. Figures for 1970 will not be available until late in 1971.

TABLE 6—CAUSES OF PERINATAL DEATHS, 1969 (N.S.W.)

Cause of Death	Number of Deaths
Maternal conditions unrelated to pregnancy .. .. .	140
Toxaemias of pregnancy .. .. .	108
Maternal ante and intrapartum infection .. .. .	18
Difficult labour and birth injury without mention of cause .. .. .	158
Other complications of pregnancy and childbirth .. .. .	340
Conditions of placenta .. .. .	420
Conditions of umbilical cord .. .. .	166
Haemolytic disease of newborn .. .. .	84
Anoxic and hypoxic conditions not elsewhere classified .. .. .	222
Immaturity unqualified .. .. .	116
Other conditions of foetus and newborn .. .. .	152
Congenital anomalies .. .. .	308
Infections and other diseases of foetus and newborn .. .. .	79
External causes of injury to newborn .. .. .	4
All Causes .. .. .	2,315



PERINATAL MORTALITY RATES  
IN STATISTICAL DIVISIONS OF  
NEW SOUTH WALES  
AVERAGE 1963-1965  
MAP 1A

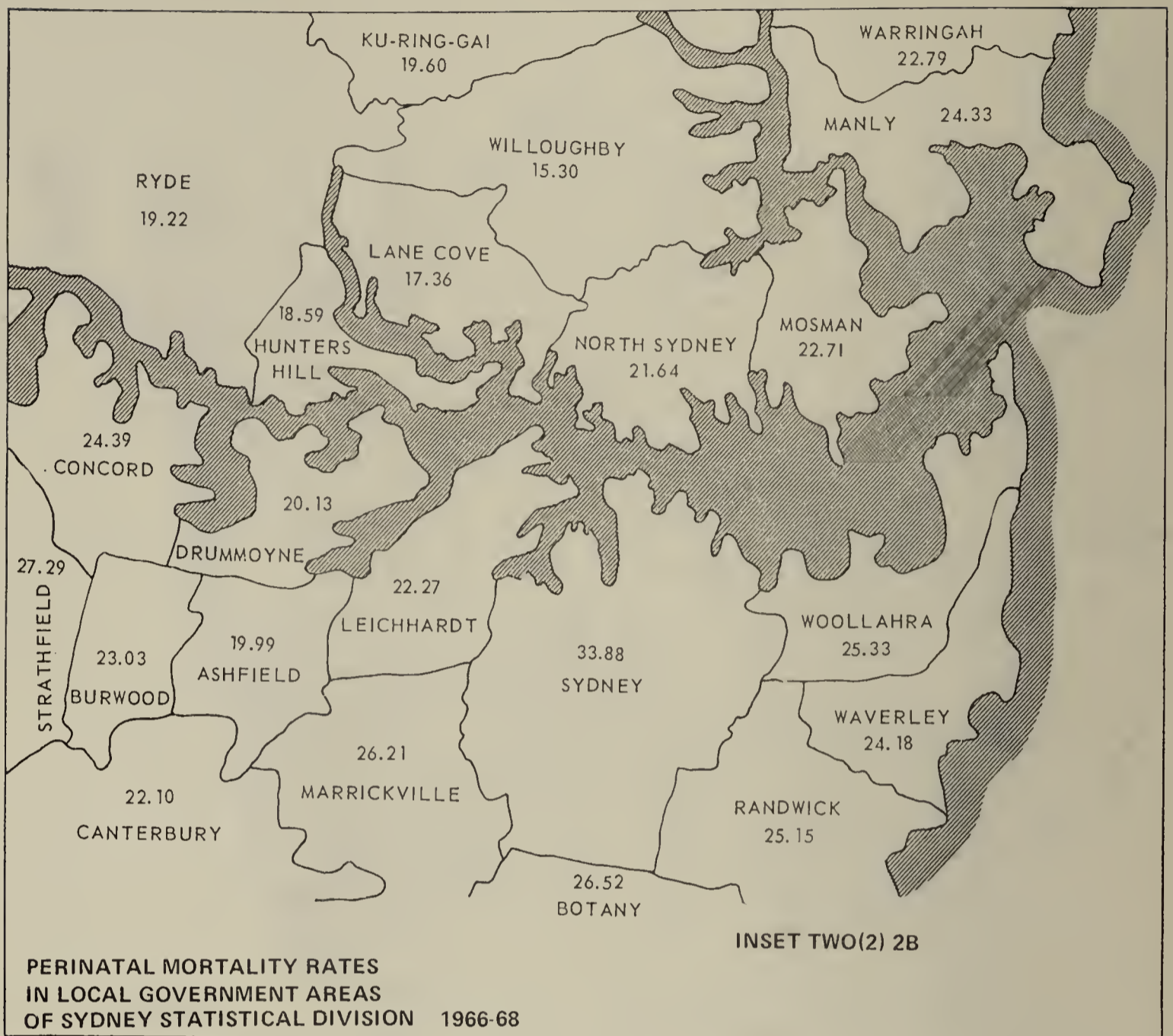


PERINATAL MORTALITY RATES  
IN STATISTICAL DIVISIONS OF  
NEW SOUTH WALES  
AVERAGE 1966-1968  
MAP 1B



### THE DIVISION OF MATERNAL AND PERINATAL STUDIES

The Maternal and Perinatal Mortality Committee continues to be the major Committee for which all work is carried out by the division. For practical purposes the Committee has been divided into two subcommittees—a Maternal Subcommittee and a Perinatal Subcommittee. Members were asked to express their preferences as to which subcommittee they wished to be members of and were allocated accordingly, except for the pathologist, who attends both subcommittees. In a similar manner, a senior statistician from the Commonwealth Bureau of Census and Statistics acts as a member of both subcommittees. The work of the subcommittees overlap to a certain extent as one cannot separate maternal and perinatal studies into such clear cut fields to enable each subcommittee to perform without consultation with the other. The Perinatal Subcommittee, whose major task is to consider the neonatal deaths, has co-opted to it two further neonatal paediatricians so that it now consists of three obstetricians and four paediatricians.



Each of these subcommittees has set itself a programme involving a number of studies and surveys and also the collection of certain basic data. Each Committee has in turn divided itself on a voluntary basis, into "Working Parties" covering various aspects of their programmes. The present personnel of the Committees are as follows:

*Maternal and Perinatal Mortality Committee*

Dr C. J. Cummins, Director General of Public Health, Chairman;  
 Professor R. Shearman, Professor of Obstetrics and Gynaecology, University of Sydney;  
 Professor H. Carey, Professor of Obstetrics, University of New South Wales;  
 Dr B. R. Hanley, Australian Medical Association representative;  
 Dr P. M. Elliott, Royal College of Obstetricians and Gynaecologists representative;  
 Dr J. Murray Moyes, representing the Royal Australian College of Pathologists;  
 Dr R. Mackey, from the Women's Hospital, Crown Street;  
 Dr R. Syred, from the Royal Hospital for Women;  
 Dr Grace Cuthbert Browne;  
 Emeritus Professor B. T. Mayes;  
 Dr E. D. Burnard, neonatal paediatrician from the University of Sydney;  
 Associate Professor L. H. Stevens, neonatal paediatrician from the University of New South Wales;  
 Dr Maureen Grattan-Smith, Medical Secretary.

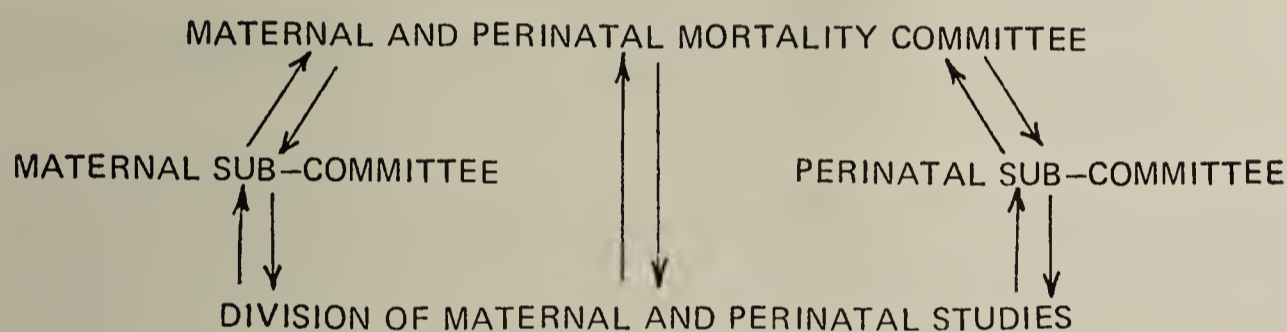
*Maternal Sub-Committee*

Dr Maureen Grattan-Smith, Chairman;  
 Professor R. Shearman;  
 Dr B. R. Hanley;  
 Dr P. M. Elliott;  
 Dr J. Murray Moyes;  
 Dr R. Mackey;  
 Emeritus Professor B. T. Mayes;  
 Mr R. Dibley from the Commonwealth Bureau of Census and Statistics.

*Perinatal Sub-Committee*

Dr Maureen Grattan-Smith, Chairman;  
 Professor H. Carey;  
 Dr R. Syred;  
 Dr J. Murray Moyes;  
 Dr Grace Cuthbert Browne;  
 Dr E. D. Burnard;  
 Associate Professor L. H. Stevens;  
 Dr J. M. Gupta, neonatal paediatrician—co-opted member;  
 Dr B. Storey, neonatal paediatrician—co-opted member;  
 Mr R. Dibley.

The Division prepares material for all committees and the lines of communication are shown hereunder:



For convenience sake, the work of the division is described in this report under the activities of the various committees and subcommittees.

**MAJOR COMMITTEE INTO MATERNAL AND PERINATAL MORTALITY**

The work of the major committee falls into the following categories:

- (1) Examination of all maternal deaths in New South Wales involving—
  - (a) deciding the cause of death;
  - (b) coding the deaths to the appropriate code number of the International Classification of Diseases;
  - (c) assessing primary avoidable factors and allocating these to the appropriate categories.
- (2) Based on the knowledge of causes of maternal deaths and primary avoidable factors, to determine action which might be taken to prevent further deaths and lessen the ever present morbidity which does not at present come to the meeting table for discussion, except as special studies. This action may involve education of personnel, either directly, by suggesting teaching authorities alteration to the content of the syllabi of training or by preparation of booklets, pamphlets for distributing information to the medical and para-medical professions. Special subjects arise from time to time, e.g., the role of oestrogens in the suppression of lactation and possible association with thrombo-embolic phenomena and in these cases, statements are prepared and sent out immediately.
- (3) To investigate aspects of training and education of medical and para-medical students, under-graduate and post-graduate and whenever problems arise and to make recommendations to the appropriate authorities, e.g., universities and hospitals.

- (4) From time to time individual members of the committee or outside institutions, e.g., teaching hospitals, individual practitioners, and others will ask the committee to set standards or make recommendations or offer opinions on various aspects of the care of the mother and the newborn. With the rapid advances, particularly in the perinatal field this is becoming an important function of the committee.
- (5) The committee authorizes the division to collect data on various aspects of obstetric and paediatric neonatal practice in the community, e.g., the number of general practitioners in New South Wales who are practising obstetrics and the number of deliveries which occur in urban and rural areas. Also to attempt to determine who is responsible for the total care of the mother during her antenatal period, pregnancy and puerperium and to what extent she has been advised and delivered by specialist, general practitioner, resident medical officers, or midwives.
- (6) From time to time problems arise due to such actions as amendments to Acts, e.g., the Registration of Births, Deaths and Marriages Act had to be amended to permit the introduction of the Compulsory Perinatal Death Certificate. This required an alteration to the definition of stillbirths, reducing the gestational period of 28 weeks to 20 weeks or 400 grammes. Immediately, the problem arose of burial of stillborn infants and action to inform the profession and hospitals of requirements has been undertaken by the Division.
- (7) The committee controls the right to the use of certain drugs such as clomiphene and is responsible for the authorizing of the issue of this drug only to those practitioners, who in the committee's opinion, are qualified to use it.
- (8) The committee makes appointments to the Obstetric Consultant Panel and to the Paediatric Consultant Panel. Acts as an advisory committee not only to the Minister of Health and the Department itself, but also to all other institutions and individuals who seek knowledge of the standards of care of the mother and newborn. In this category might be included in the future, such problems as the in-utero detection of congenital anomalies which is a rapidly growing area.
- (9) All survey studies, etc., prepared by the subcommittees are ultimately sent to the major committee who gives final approval for the publication of any material which may follow.

In 1970 the number of live births in New South Wales reached a total which had never previously been reached, i.e., 88,448. The maternal mortality rate for 1970 is 0.25 per 1,000 live births. This appears to be a rise when contrasted with 1969, when the rate was 0.17, but it is of no significance because of the small number of deaths involved. One or two extra deaths will have this effect. For this reason the maternal mortality rate is of no value as an index of care and should be dropped in favour of the perinatal rate, which is significant. The collection of maternal deaths is extremely important so that all possible cases are included and the following procedure is adopted in this State:

The Division of Maternal and Perinatal Studies receives notice of possible maternal deaths from:

- (1) Death certificates where the *stated cause of death* relates to pregnancy, childbirth, and puerperium.
- (2) Death certificates for women of child bearing age (15–45) are examined and if it is stated that there has been "an issue", i.e., a baby, the *age of issue* is checked. If this is less than 6 weeks then, irrespective of the stated cause of death of the mother, the case is forwarded for consideration by the committee.
- (3) *Perinatal death certificates* are checked and if the certifying doctor indicates on this certificate that the mother died, this is cross checked with the maternal deaths to be sure it is included.
- (4) All death certificates for women of child bearing age are scrutinized for *cause of death*. certain causes are stated which might relate to pregnancy, childbirth, and puerperium, e.g., thrombosis, haemorrhage of any kind, toxæmia, mastitis, etc.—and there are at least twenty such causes—investigations are made at the hospital or with the doctor to determine if the woman was pregnant and if so the case is forwarded to the committee.
- (5) *Coroners cases*—these are often delayed for a long period. When the death certificate is processed and it is for a woman of childbearing age, irrespective of stated cause of death—suicide, accidental death, etc., investigations are made at the Coroners Court to determine if the woman was pregnant. If the court doesn't have the information, enquiries are made from the Police Department. If post mortem or other evidence is obtained that the woman was pregnant the case is forwarded to the committee.

It is doubtful if other States or countries pursue their maternal deaths to this extent. In some areas only death certificates are taken and often there is no evidence on a certificate that the woman was pregnant. Thus cases are missed. The importance of thoroughness and its effect on the maternal mortality rate is demonstrated in table 7.

TABLE 7—ANALYSIS OF MATERNAL DEATH NOTIFICATIONS (FORM NO. 18A) FORWARDED TO THE STATE HEALTH DEPARTMENT, N.S.W., 1964 TO 1969

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Year	Notified Because of Cause of Death *			Notified as a Result of Further Information Being Obtained †			Final Allocation								
	Number		Rate ‡	Final Allocation		Final Allocation		Rate ‡							
	Total	Final Allocation		Total	Final Allocation		Total	Final Allocation							
		Maternal	Non-Maternal		Maternal	Non-Maternal		Maternal	Non-Maternal						
1964	22	20	2	0.27	0.25	0.02	16	8	8	38	28	10	0.47	0.35	0.12
1965	21	18	3	0.27	0.23	0.04	15	7	8	36	25	11	0.46	0.32	0.14
1966	27	20	7	0.35	0.26	0.09	7	2	5	34	22	12	0.44	0.28	0.15
1967	17	15	2	0.22	0.19	0.03	13	4	9	30	19	11	0.38	0.24	0.14
1968	18	18	..	0.22	0.22	..	18	10	8	36	28	8	0.44	0.34	0.10
1969	18	13	5	0.21	0.15	0.06	11	2	9	29	15	14	0.34	0.17	0.16

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\* These deaths were notified solely because of the stated cause of death on the medical certificate.  
† These deaths were notified not because of the stated cause of death but as a result of additional information being obtained from the Register Generals Department (e.g. age of last child), Coroners' papers (e.g. P.M. reports) or certifying doctors (e.g. query on cause of death).  
‡ Rate per 1,000 live births.

An analysis was made of maternal death notifications (form 18A) received by the State Health Department for the period 1964 to 1969. Attention is drawn to the year 1968 and to the ten "extra" maternal deaths studied by the Committee because of the further investigations undertaken to obtain all deaths as set out in (2), (3), (4), and (5) above. This resulted in an "increase" in the maternal mortality rate for New South Wales for 1968 from 0.22 to 0.34 and demonstrates the inadequacy of the maternal mortality rate as an index of the standards of care in a community when the number of maternal deaths is low and why comparisons cannot be made between one area and another.

During 1970 there were only four meetings of the maternal and Perinatal Mortality Committee due to the establishment, rehousing, and staffing of the division, which was not completed until September, 1970, and the number of meetings therefore was the lowest for many years. It is anticipated that in 1971 the meetings will be considerably in excess of 1970. The table below indicates the deaths which were considered, the years in which they occurred and whether they were classified to maternal or non-maternal.

TABLE 8—MATERNAL DEATHS CONSIDERED DURING 1970

Year of Death	Number of Deaths		
	Maternal	Non-Maternal (Associated)	Total
1968 .. .. .	1	..	1
1969 .. .. .	10	7	17
1970 .. .. .	8	3	11
Total .. .. .	19	10	29

A Maternal Death is one in which pregnancy and childbirth were directly responsible for the death.

A Non-Maternal or Associated Death is one in which the pregnancy and childbirth were coincidental and not the cause of death.

### MATERNAL SUBCOMMITTEE

This committee consists entirely of obstetricians and there are in all, six members and the pattern of work follows that previously done by the Publications Subcommittee. At its first meeting, the Maternal Subcommittee set the following programme:

- (1) Caesarean section follow-up survey.
- (2) Eclampsia—a retrospective study over 10 years on the incidence of eclampsia and a study of maternal deaths for the same period from eclampsia and severe pre-eclampsia.
- (3) Thrombo-embolic phenomena—incidence in both obstetric and surgical hospitals in order to determine the value of a prospective study.
- (4) Report on maternal deaths for the two triennia, 1964–66 and 1967–69.
- (5) Collect information on the number of deliveries in the larger obstetric hospitals in the Sydney statistical division and details of whether these deliveries are public, private, or intermediate. Also information on the status of the staff of each hospital so an assessment can be made on the possibility of using hospitals other than the present teaching hospitals for the training of medical and nursing personnel.

Two further projects are to be the responsibility of the officers of this division. These are:

- (1) To prepare a new edition of the booklet *Obstetric Practice in New South Wales*, bringing up to date the material contained in the old edition and adding whatever is considered necessary in terms of more recent knowledge.
- (2) A study of "booked" and "unbooked" cases and the related perinatal mortality. This title has subsequently been dropped because of the wide variation of definitions of "booked" and "unbooked". The work is now referred to as a "Study of Confinements" to determine the effect of inadequate antenatal care on perinatal loss.

In order to cope with the work entailed the subcommittee divided itself into working parties consisting of one or two or more members, which of course, involved a certain amount of overlapping of personnel. Each working party proceeded with its own project and reported to the subcommittee whenever necessary. Whenever a project was finalized or any information of value obtained, a report was made to the major committee. At the 31st December, 1970, the following position exists in regard to these various projects:

- (1) *The Caesarean Section Follow-up Survey.* In 1965, a questionnaire was sent to all hospitals with obstetric beds in New South Wales, to determine the incidence of Caesarean section for the years 1963 and 1964 and subsequently for 1965, 1966, and 1967. Results of these studies were published in the *Medical Journal of Australia* in 1969. In order to bring these figures up to date, a further study was carried out to cover the years 1968 and 1969. Of the 194 hospitals circularized, returns were received from 151, approximately 78 per cent. The returns received covered nearly 93 per cent of the total confinements for the State for the 2-year period and so form a reasonably accurate picture of the situation. Table 9 sets out the results of this survey showing whether the hospital was metropolitan or country and whether a public or private hospital.

TABLE 9

Hospitals covered by survey	1968			1969		
	Total Confinements	No. of Caesarean Sections	*Rate	Total Confinements	No. of Caesarean Sections	*Rate
Metropolitan Private ..	2,599	140	54	3,142	222	71
Metropolitan Public ..	39,969	2,284	57	42,991	2,668	62
Remainder of State ..	32,572	1,141	35	34,655	1,295	37
Total ..	75,140	3,565	47	80,788	4,185	52

\* The rate is the number of Caesarean sections per thousand confinements.

It is obvious that there will always be a higher rate of Caesarean sections in those larger teaching hospitals, to which are referred cases with complications which cannot be handled adequately at smaller hospitals. Bearing this in mind table 10 sets out the Caesarean rates in terms of the size of the hospital and it can be seen from this that from 1963 to 1969 there has been an increase in the Caesarian section rate in hospitals with more than 1,000 confinements per annum (other than the teaching hospitals) but in all other hospitals after initially rising, the rates now appear to have levelled off. This survey with further details will be published in the *Medical Journal of Australia* during 1971.

TABLE 10—COMPARATIVE RATES OF CAESARIAN SECTION OVER THE YEARS 1963-69 (INCLUSIVE) BY TYPE OF HOSPITAL

Type of Hospital	Casesarean Section Rate*						
	1963	1964	1965	1966	1967	1968	1969
Teaching Hospitals ..	50	54	56	68	71	60	65
Hospitals with more than 1,000 confinements (other than Teaching Hospitals) ..	32	40	40	43	50	52	54
Hospitals with 400-999 confinements ..	28	29	39	39	52	35	43
Hospitals with 200-399 confinements ..	30	33	27	38	39	34	33

\* Caesarean section rate equals the number of Caesarean sections per thousand confinements.

- (2) *Eclampsia*. A retrospective study was carried out covering all obstetric hospitals in New South Wales to determine the number of cases of eclampsia which had occurred during the period 1959-68. This period has been divided into two triennia and the results to date are shown in table 11.

TABLE 11—ECLAMPSIA CASES IN NEW SOUTH WALES, 1959-68

	1959-63	1964-68
Hospitals circularized ..	176	176
Replies received ..	155	155
Cases ..	172	199
Total Confinements ..	415,999	397,200
Rate per 100,000 confinements ..	40	50

These preliminary figures indicate an increase in the incidence of eclampsia. When finalized, consideration will be given to a prospective study.

- (3) *Thrombo-embolic Phenomena*. A retrospective study of morbidity and mortality associated with thrombo-embolic phenomena for the year 1965 was carried out at five major hospitals, three of these hospitals were purely obstetrics and the remaining two were both surgical and obstetric hospitals. This survey showed that there were seventy-seven cases diagnosed in these five hospitals. Diagnosis was on a purely clinical basis and the result of the survey, although in no way a true and accurate picture, should nevertheless give some indication of the value of a prospective study.

- (4) *Triennial Studies of Maternal Deaths* 1964–66, 1967–69. A study of the maternal deaths occurring in the two triennia have been undertaken by one working party with a view to producing a publication similar in context to that produced in England and Wales but by no means as lengthy and also similar to the one produced by the Commonwealth of Australia. These reports should be ready for publication by the middle of 1971.

The major causes of maternal deaths in 1970 are shown in table 12.

TABLE 12—MAJOR CAUSES OF MATERNAL DEATHS, 1970

Cause of Death	Number
Haemorrhage .. .. .	5
Pulmonary Embolism .. .. .	4
Amniotic Fluid Embolism .. .. .	1
Air Embolism .. .. .	1
Abortion (2 criminal, 1 unstated) .. .. .	3
Toxaemias .. .. .	3
Eclampsia 1	}
Pre-eclampsia 1	
Not otherwise stated	
Sepsis .. .. .	2
Hydatidiform mole (Chorio-carcinoma not included for statistical purposes) .. .. .	1
Hypoglycaemia .. .. .	1
Anaesthesia (not finalized) .. .. .	1
	22

- (5) *Under-graduate, Graduate, and Midwifery Training in Obstetrics and Gynaecology.* The most important factor influencing maternal and perinatal mortality is the level of training and experience of the doctor and/or midwife responsible for the obstetrical care of the patient. From surveys conducted previously it would appear that general practitioners are responsible for about a quarter of the deliveries in the metropolitan area of Sydney and for nearly all the country deliveries. At a conservative estimate one in three graduates will be called on to undertake obstetrical work and one in five will have to undertake responsibility without any close association with a specialist obstetrician and without the benefit of a period of residential training in obstetrics following graduation.

The diminishing number of clinical or public patients available to the medical graduate and under-graduate and the midwives has created problems which are under consideration by all organizations interested in obstetrical and gynaecological education and practice. This division in 1970 set up several studies to obtain basic data regarding the distribution of deliveries in New South Wales, the staff of obstetric hospitals and their levels of training, the number of deliveries in the hospitals and their classifications as to private, intermediate, or public. This is a data collection programme to obtain a better understanding of the requirements of the future. Advice and assistance can then be given to those organizations and individuals who are personally concerned with the training of the medical staff and midwife. By mid-1971 information should be available on all aspects of confinements in New South Wales in terms of the accoucheur, the status of the patient (private or public) the staffing of hospitals, the number of deliveries and the possibility of using peripheral hospitals to augment the present facilities of the teaching hospitals in training programmes.

SPECIAL DIVISIONAL PROJECTS

The two projects which have been undertaken by officers of the division are proceeding. A new edition of *Obstetric Practice in New South Wales* is being completed with the assistance of experts in the various fields and will be published in 1971 and distributed to all practitioners and obstetric hospitals in New South Wales.

The second project, which was to study the relationship of antenatal care to perinatal mortality is under way. A brief survey conducted during the year indicated that, if the antenatal care consisted of two visits or less, then the perinatal death rate would be five times as great. With this in mind a form was prepared with the assistance of the Bureau of Census and Statistics seeking information on the antenatal care of the babies delivered in two of our major hospitals. The results were unsatisfactory as it was not possible to obtain reports on the antenatal care of private and intermediate patients. To get it, an approach would need to be made to each individual doctor and this is beyond the capacity of this division at present. Further thought has been given to the matter and it is now proposed to sample the perinatal death certificates and devise a questionnaire. This will then be sent to the individual doctors responsible for the care of the mother seeking the antenatal history of the patient.

### PERINATAL SUBCOMMITTEE

Whereas the role of the Maternal Subcommittee had clear lines along which to proceed because it was in fact a continuation of the old Publications Subcommittee, the Perinatal Subcommittee was a new concept and only one meeting was held in October, 1970. The two co-opted members attended along with the basic representatives from the major Committee and also a representative of the Commonwealth Bureau of Census and Statistics. The role of the subcommittee was discussed at length and certain basic fields which could be attacked immediately were selected and allocated to individual members of working parties of the subcommittee, as had been the pattern with the Maternal Subcommittee.

The first decision was to issue to all members of the major committee and subcommittees a statement made in a circular newsletter of the International Paediatric Association in June, 1970. This statement set out the relationships between the obstetrician and the paediatrician in the care of the mother and the baby and a copy was sent to all members. The statement best describes the role not only of the obstetrician and paediatrician but of this division in its efforts to achieve the best possible care for mother and newborn child and reads as follows:

- “(1) Paediatricians should share with obstetricians responsibility both for the care of all individual newborn babies, healthy and sick, and for the general administrative and medical arrangements for the newborn.
- (2) The obstetrician must retain ultimate responsibility for the management of pregnancy and the conduct of labour. However it should be recognized that the paediatrician had an expert contribution to make towards the care of the foetus, the timing of delivery, and other aspects of antenatal care, traditionally the sole concern of the obstetrician. Thus it is desirable that consultations between obstetrician and paediatrician should become routine in obstetric management, where there is a special risk to the foetus or newborn.
- (3) Medical undergraduates should receive an adequate education in reproductive and perinatal medicine, integrated courses being conducted by teachers in obstetrics and paediatrics. Paediatricians should participate in the postgraduate education of the obstetrician to ensure that neonatal paediatrics is adequately covered and, equally, the post-graduate education of the paediatrician should include a period of attachment to an obstetric unit.

Paediatricians as well as obstetricians should be involved in the training programmes for midwives.

Obstetricians and paediatricians should have a joint responsibility with Public Health authorities for Maternal and Child Welfare schemes.

- (4) The opportunities for collaborative research between obstetricians and paediatricians in the field of perinatal medicine should be fully exploited and are certain to be rewarding.
- (5) Any form of compulsion or legislation applied to perinatal paediatrics is unacceptable. Compulsion is inappropriate in a field in which it is impossible to define with precision the limits of responsibility of the obstetrician and the paediatrician and in which willing collaboration and mutual respect are essential. Detailed recommendations as to the form this collaboration should take are also inappropriate since these will depend on many local considerations.”

This statement was published with the approval of Professor H. de Watteville, Secretary General of the International Federation of Gynaecology and Obstetrics. It was accepted by the General Assembly of the International Federation in New York in 1970. The statement was also published in the *International Journal of Gynaecology and Obstetrics* and sent to the seventy-five constituent Societies of the International Federation. All members of our Maternal and Perinatal Mortality Committee and Subcommittees have now received this.

The other areas in which special investigations were thought necessary were:

- (1) The need for vitamin K<sub>1</sub> to be given to all newborns as a routine measure at birth. A number of deaths due to haemorrhagic disease of the newborn still add to the overall perinatal loss in this State.
- (2) Small for dates babies, their recognition and the need to stress the possibility of hypoglycaemia and early feeding to prevent mental retardation.
- (3) Hyperbilirubinaemia and what advice could be given to the profession in handling this condition.
- (4) Resuscitation of the newborn. The subcommittee studied tables showing the high number of deaths due to inefficient or inadequate resuscitation of the newborn. It was decided that certain standards should be set out on facilities and training of personnel and the possible transfer of babies to major centres, which would be equipped to handle this condition. The division was allocated the task of inspecting every obstetric hospital in New South Wales and setting out the methods and routines used so that the overall picture in the State would be known and future planning possible.

- (5) The need for training of post-graduate doctors and nurses, who were working either in practice or in hospitals and who had had no opportunity to be brought up to date with the many advances associated with the care of the newborn. The possibility of involving the Post-graduate Committees of both universities is to be investigated.

This represented the result of the first meeting of the subcommittee and during 1971 many of these activities should be completed and appropriate statements made and action taken.

## PERINATAL DEATHS

As stated earlier in this report perinatal mortality studies have been conducted in New South Wales from 1962. Until 1968 these were on a voluntary basis but on the 1st January, 1969, the Compulsory Perinatal Death Certificate came into operation by an amendment to the Registration of Births, Deaths and Marriages Act. The Commonwealth Bureau of Census and Statistics has since 1962, prepared tables on many aspects of births, stillbirths, and neonatal deaths in terms of parity, age of mother, statistical divisions, etc. The divisional officers are preparing a booklet covering the information available on perinatal deaths from 1962 to 1968 and subsequently another publication which will cover the 2 years of the compulsory death certificates, 1969 and 1970.

The excellent perinatal mortality studies conducted in Britain under the auspices of the National Birthday Trust Fund have shown the relationship of many aspects of pregnancy and childbirth to the perinatal loss. To repeat this work in Australia would not only be difficult but would be repeating unnecessarily a lengthy investigation which would without doubt show that the experience of mothers in Australia is similar to that in the United Kingdom. In view of this and the large numbers of deaths to be studied the division has looked at the problem and believes that it would be wise to collect data on the perinatal mortality rate for various areas in the State for different hospitals and local government areas. This would give some impression of what was happening to the stillbirths and neonates and once this was collected some indication might be obtained of a future programme.

## EDUCATIONAL PROGRAMME

There is no doubt that education of the medical and paramedical staff working with mothers and the newborn is a primary facet of the work of this division. This can best be obtained by encouraging obstetric hospitals to set up their own perinatal care committees. Most of the major teaching hospitals in Sydney have perinatal care committees at which the deaths are considered by the staff of the hospitals and involving the doctors and nurses who were associated with the mother and baby prior to its death. In 1959, two major hospitals in Newcastle set up their own perinatal care committees and as has been said previously, the dramatic improvement in both infant and perinatal mortality in the Newcastle area might in part be attributed to this committee which has since its inception considered every death at both these hospitals.

It is the intention that officers of the division will visit country areas and encourage the doctors practising to co-operate and form their own committees to study the deaths. By doing this, each death can be considered in detail with the maximum of information present and with the maximum of return to those participating in the discussion. There is no intention in this that there should be any concept of fault finding but that rather each death should assist the practising profession to understand the need for ongoing education and experience in the care of the mother and the newborn. This follows the pattern which was set when the maternal deaths were examined over the years and should result in a diminution in perinatal mortality and morbidity.

## FUTURE PROJECTS

The role of genetics in perinatal loss is a field which is being investigated in major research units all over the world. This field and particularly prenatal diagnosis of inherited disease will involve this division in future years. In 1971, investigations will be made into the facilities available nationally and internationally for the determination of chromosomal and enzymatic defects responsible for inherited disease. Only a few diseases can at present be diagnosed prenatally but no doubt there will be many more and it is essential that New South Wales establish an efficient and economic scheme to cover this need.

Permission has been granted for all perinatal death certificates to be copied and sent to this division. It is the intention to sample these certificates and endeavour to obtain more details in those areas of care which at present we know we can improve. This particularly applies to antenatal supervision, the lack of which is still responsible for many perinatal deaths.

The area of work of the division is wide and is developing rapidly. It offers a great deal of return to those working in the field and to the community in the saving of lives and in the prevention of morbidity in the mother and particularly in the child, as this is the area from which come children who are physically and mentally handicapped.

### FREE OBSTETRIC CONSULTANT SERVICE

In the calendar year 1970 there were twenty-one consultations. Five new members' names were added to the Obstetric Consultant Panel. One hundred and twenty-two obstetric consultants are now available to this service.

(1) Consultants resident in the country available for local country areas:

(a) Australian Capital Territory .. .. .	5
(b) Riverina Health District .. .. .	3
(c) Newcastle and North Coast Health Districts .. .. .	12
(d) North Western Health District .. .. .	1
(e) South Coast Health District .. .. .	5
(f) Western Health District .. .. .	5

(2) Consultants resident in metropolitan area:

(a) Available for consultation anywhere in New South Wales ..	63
(b) Available for consultation in metropolitan area only ...	28

### FREE ANAESTHETIC CONSULTANT SERVICE

No consultations were arranged in 1970. This service is available and provided when the consultant obstetrician needs the services of a skilled anaesthetist.

### FREE PAEDIATRIC CONSULTANT SERVICE

There were seventeen consultations in 1970 and there are now fifty-one paediatric consultants listed on this panel.

(1) Australian Capital Territory.. .. . 4

(2) New South Wales—

(a) Physicians .. .. .	27
(b) Surgeons .. .. .	10
(c) Available for telephone consultation only except in exceptional circumstances .. .. .	10

### APPENDIX 1—NEW SOUTH WALES PERINATAL MORTALITY BY STATISTICAL DIVISION IN TRIENNIA

Statistical Division	Triennium 1963-65 Average		Triennium 1966-68 Average	
	Number	Rate	Number	Rate
Cumberland .. .. .	1,160	25.27	1,119	23.82
Sydney .. .. .	1,075	25.08	1,119	23.82
Balance of Cumberland .. .. .	85	27.89	..	..
North Coast .. .. .	94	27.56	69	22.92
Hunter and Manning .. .. .	268	28.32	219	24.49
Newcastle .. .. .	132	29.67	150	24.36
Balance of Hunter and Manning .. .. .	136	28.46	68	24.77
South Coast .. .. .	146	26.71	139	27.44
Greater Wollongong .. .. .	83	25.42	94	26.12
Balance of South Coast .. .. .	63	28.62	45	30.67
Northern Tablelands .. .. .	38	31.06	32	27.34
Central Tablelands .. .. .	100	28.91	82	29.01
Southern Tablelands .. .. .	47	30.61	26	18.39
North West Slopes .. .. .	40	25.74	36	24.68
Central West Slopes .. .. .	42	24.95	36	23.74
South West Slopes .. .. .	89	27.15	85	27.41
North Central Plain .. .. .	31	32.75	26	28.60
Central Plain .. .. .	27	34.47	22	31.66
Riverina .. .. .	58	26.85	43	21.42
Western .. .. .	41	30.70	31	26.59
New South Wales .. .. .	2,180	26.61	1,966	24.48
New South Wales Excluding Sydney .. .. .	1,105	28.28	847	25.41

APPENDIX 2—PERINATAL MORTALITY IN LOCAL GOVERNMENT AREAS WITHIN SYDNEY STATISTICAL DIVISION 1966–8

Local Government Area	Perinatal Mortality	
	Number	Rate
Ashfield Municipality .. .. .	52	19·99
Auburn Municipality .. .. .	70	29·57
Bankstown Municipality .. .. .	195	23·29
Baulkham Hills Shire .. .. .	35	13·67
Blacktown Municipality .. .. .	226	26·73
Blue Mountains Municipality City (part) .. .. .	20	20·02
Botany Municipality .. .. .	52	26·52
Burwood Municipality .. .. .	33	23·03
Camden Municipality .. .. .	13	23·81
Campbelltown Municipality City .. .. .	49	27·10
Canterbury Municipality .. .. .	133	22·10
Concord Municipality .. .. .	27	24·39
Drummoyne Municipality .. .. .	28	20·13
Fairfield Municipality .. .. .	179	26·56
Holroyd Municipality .. .. .	96	22·19
Hornsby Shire .. .. .	96	18·76
Hunters Hill Municipality .. .. .	10	18·59
Hurstville Municipality .. .. .	75	24·61
Kogarah Municipality .. .. .	45	23·96
Ku-ring-gai .. .. .	76	19·60
Lane Cove Municipality .. .. .	18	17·36
*Leichhardt Municipality .. .. .	89	22·27
Liverpool Municipality City .. .. .	124	25·32
Manly Municipality .. .. .	34	24·33
*Marrickville Municipality .. .. .	165	26·21
Mosman Municipality .. .. .	27	22·71
North Sydney Municipality .. .. .	46	21·64
Parramatta Municipality City .. .. .	127	23·64
Penrith Municipality City .. .. .	86	25·24
Randwick Municipality .. .. .	134	25·15
Rockdale Municipality .. .. .	96	27·87
Ryde Municipality .. .. .	75	19·22
*South Sydney Municipality .. .. .	27	29·16
Strathfield Municipality .. .. .	28	27·29
Sutherland Shire .. .. .	163	19·59
*Sydney Municipality City .. .. .	259	34·31
Warringah Shire .. .. .	181	22·79
Waverley Municipality .. .. .	66	24·18
Willoughby Municipality .. .. .	32	15·30
Windsor Municipality .. .. .	27	31·64
*Woollahra Municipality .. .. .	44	25·33
Total Sydney Statistical Division.. .. .	3,358	23·82
Sydney, plus South Sydney .. .. .	286	33·88

\*In August, 1968, parts of the city of Sydney were transferred to:

- (1) Leichhardt M.
- (2) Marrickville M.
- (3) Woollahra M.
- (4) South Sydney M. was constituted from an area of the city of Sydney.

Figures for 1968 are included within the new local government area on the map. Figures for South Sydney M. are included in those for city of Sydney M.

M = Municipality.  
S = Shire.

DIVISION OF DENTAL SERVICES

Director: W.B. HAYMET, B.D.S. (Hons.)  
Location: 9—13 Young Street, Sydney, 2000

The authorized establishment of the division is:

- 44 Dental Officers, full-time.  
(including Director and Deputy-Director)
- 8 Dental Officers, part-time
- 41 Dental Assistants
- 1 Field Assistant
- 1 Typist
- 1 Office Assistant

As in recent years staffing problems continued particularly in country areas. Greater use was made of Dental Nurses trained in New Zealand and now residing permanently in New South Wales. Vacancies for Dental Officers were filled by these personnel which enabled a reasonable therapeutic output to be achieved, although it was slightly less than in 1969. Fortunately, the number of patients examined increased considerably.

Mr C. S. White, Senior Supervisory Dentist, retired in April. His engineering and architectural knowledge have been a loss to the Division. Mr N. T. Wright, who has had many years experience with the Department and previously Principal Dental Officer, Newcastle Health District, was appointed to the position which was redesignated Deputy-Director, Division of Dental Services.

Considerable Loan Funds were received which enabled a new School Dental Clinic to be erected at the Mount Druitt Public School. The Department of Education graciously made the site available at short notice. Also an additional six surgeries, offices, etc., were completed at Adamstown Dental Clinic, Newcastle. The facilities include a general anaesthetic surgery and recovery room for sub-normal children.

Two of the mobile dental clinics were re-equipped with modern equipment. The policy of remodelling the older surgeries in government institutions was continued.

Assistance to the Western Shires Dental Scheme was continued throughout the year. Staffing difficulties were also encountered in the Bourke-Brewarrina section. It is anticipated that a dental officer recruited in New Zealand will commence duties in the early part of 1971.

The division was represented at all meetings held by the Dental Services Advisory Committee throughout the year. An interim report has already been proposed.

The second stage of the survey being conducted by the Institute of Dental Research was completed in May, and details have been finalised for the final segment in 1971. It was gratifying that over 90 per cent of parents who gave consent for their children to take part in the initial programme again co-operated in the later stages.

The usual liaison was continued with the Education, Child Welfare and Police Departments, the Dental Health Education and Research Foundation, and the Australian Dental Association.

During school vacations a mobile dental clinic was again located on the campus of the University of New South Wales, and 572 students availed themselves of the advisory service.

Lectures were continued to In-Service training courses, the Nurses College and the Dental School, Sydney University. The usual schoolroom talks were given to children.

The total achievement for the division in 1970 (including decentralized health districts) was, as under—

Examinations	..	..	..	..	..	..	..	118,909
Notifications of dental defects	..	..	..	..	..	..	..	23,313
New Cases	..	..	..	..	..	..	..	26,937
Total Cases	..	..	..	..	..	..	..	102,217
Extractions	..	..	..	..	..	..	..	38,092
Fillings	..	..	..	..	..	..	..	86,840
Other Treatments (including Prophylaxis)	..	..	..	..	..	..	..	101,689
General Anaesthetics	..	..	..	..	..	..	..	275
Dentures	..	..	..	..	..	..	..	1,186
Denture Repairs	..	..	..	..	..	..	..	551
Orthodontic Appliances	..	..	..	..	..	..	..	324

### School Dental Service

The new dental clinic at Mount Druitt commenced operations in August, 1970, and the additional accommodation at Adamstown was occupied in December, 1970. A new dental surgery in the Queenscliff Health Centre will be completed early in 1971.

In May and June staff and other assistance were made available to the Department of Preventive Dentistry, University of Sydney, at the annual fluoridation survey at Tamworth. Documented results show a remarkable improvement in dental health in the younger children who have received maximum benefits from the adjusted fluoride content of the local potable water.

In the examination and advisory service to infants' and primary school children, 62,633 were seen. The number of children urgently requiring dental treatment varied from 33 per cent in suburbs in the northern part of Sydney to 70 per cent in the city areas. An important feature, which again became evident, was the high proportion of migrant children urgently in need of dental attention. Reference will be made to this aspect in the concluding section of this report.

In the age group 6-9 years, 19,891 children were included in a survey prior to obtaining parental permission to carry out the necessary treatment. Only 16.90 per cent had naturally healthy teeth. A further 20.90 per cent had healthy dentitions as a result of treatment, and 62.20 per cent could be described as requiring dental treatment urgently. Of the latter, parental permission to proceed with treatment was received in 70.30 per cent of cases.

The fact that at least 70.00 per cent of parents will accept free dental treatment for their children supports the need for additional therapeutic services, particularly in country areas where private dentists are not readily available.

An excellent site has been obtained at Westmead adjacent to the Marsden Hospital and the proposed Westmead Hospital Complex, for a dental nurses training school. There is a strong possibility that this project, which necessitates considerable finance, will eventuate in 1971/1972. It is unfortunate that both the Dental Board and the Australian Dental Association insist on strict requirements of supervision of these personnel which have not been found necessary in New Zealand where the scheme has functioned successfully for 50 years. A considerable amount of the Dental Officers' time was wasted during the year due to the existing requirements of the Dentists Act. Seven dental officers were involved to examine a total of 5,369 children.

During the year examining officers visited 184 schools, and an additional 255 schools were included in the treatment programme by mobile clinics and the aerial dental service.

#### *Dental Treatment in N.S.W. Schools*

Examinations	..	..	..	..	..	..	..	102,163
New Cases	..	..	..	..	..	..	..	19,838
Total Cases	..	..	..	..	..	..	..	77,382
Extractions	..	..	..	..	..	..	..	26,569
Fillings	..	..	..	..	..	..	..	77,178
Other Treatments (including Prophylaxis)	..	..	..	..	..	..	..	86,182
Dentures	..	..	..	..	..	..	..	87
Orthodontic Appliances	..	..	..	..	..	..	..	324
General Anaesthetics	..	..	..	..	..	..	..	4

#### **AERIAL DENTAL SERVICE—ROYAL FLYING DOCTOR SERVICE**

This important aspect of the division's activities continued without interruption throughout the year until the resignation of Mr E. J. Eslake in December. He was then appointed Director of the Royal Flying Doctor Service. Mr Eslake was notably successful in his duties over a period of some 6½ years. As a replacement has been recruited the service will continue in 1971.

The "Dental Team," consisting of dental officer, dental nurse and dental assistant, travelled 41,711 miles by air and 7,952 by road. Additional equipment of a more permanent nature was provided during the year.

In the area 103 visits were made to schools, 41 to hospitals and 84 to homesteads. Some of the latter are actually in south-western Queensland and north-eastern South Australia, but are included in the normal itinerary of the Royal Flying Doctor Service (N.S.W. Section).

#### **Dental treatment completed—**

Examinations	..	..	..	..	..	..	..	3,336
New Cases	..	..	..	..	..	..	..	1,708
Total Cases	..	..	..	..	..	..	..	4,349
Extractions	..	..	..	..	..	..	..	1,579
Fillings	..	..	..	..	..	..	..	3,860
Other Treatments (including Prophylaxis)	..	..	..	..	..	..	..	4,496
Dentures	..	..	..	..	..	..	..	30
Orthodontic Appliances	..	..	..	..	..	..	..	8
General Anaesthetics	..	..	..	..	..	..	..	4

#### **INSTITUTION SERVICE**

Despite some difficulties in staffing, particularly in the penal establishments, the service was maintained at a satisfactory level. An additional dental officer was appointed to the Newcastle Health District, which resulted in improved services. The policy of modernizing clinics was continued. Some have been completed and considerable further finance has been requested to proceed with a number of projects in 1971.

### PSYCHIATRIC HOSPITALS

A new clinic was completed at Stockton Hospital, and some new equipment was received at Callan Park and Rydalmere Hospitals. A new, larger location has been obtained at Callan Park and a new clinic has been planned for Rydalmere. New equipment has been requested for Parramatta, Bloomfield, Newcastle, Morisset and Kenmore Hospitals.

The general anaesthetic service continued to be an important feature.

#### *Services completed*

Examinations	..	..	..	..	..	..	..	9,686
New Cases	..	..	..	..	..	..	..	2,701
Total Cases	..	..	..	..	..	..	..	10,990
Extractions	..	..	..	..	..	..	..	4,561
Fillings	..	..	..	..	..	..	..	3,088
Other Treatments (including Prophylaxis)	..	..	..	..	..	..	..	6,518
General Anaesthetics	..	..	..	..	..	..	..	202
Dentures	..	..	..	..	..	..	..	511
Denture Repairs	..	..	..	..	..	..	..	357

### STATE HOSPITALS AND HOMES

The usual regular and emergency services were maintained throughout the year. A new modern clinic was completed at Lidcombe Hospital. Some new equipment was received at Randwick Hospital. A new location for the clinic is planned for this Hospital. Regular general anaesthetic sessions were continued at Grosvenor Hospital.

#### *Services completed*

Examinations	..	..	..	..	..	..	..	1,481
New Cases	..	..	..	..	..	..	..	597
Total Cases	..	..	..	..	..	..	..	1,923
Extractions	..	..	..	..	..	..	..	1,827
Fillings	..	..	..	..	..	..	..	414
Other Treatments (including Prophylaxis)	..	..	..	..	..	..	..	1,079
General Anaesthetics	..	..	..	..	..	..	..	64
Dentures	..	..	..	..	..	..	..	173
Denture Repairs	..	..	..	..	..	..	..	51

### PENAL ESTABLISHMENTS

Staffing problems caused difficulties in the prisons. Both of the experienced dental officers resigned and have since been replaced. The clinics at the Long Bay complex, Silverwater and East Maitland are of good standard. Funds have been requested to improve the surgeries at Bathurst, Emu Plains, Goulburn, Grafton and Parramatta. Two full-time dental assistants were appointed to assist the dental officers during the year.

#### *Services completed*

Examinations	..	..	..	..	..	..	..	1,695
New Cases	..	..	..	..	..	..	..	2,029
Total Cases	..	..	..	..	..	..	..	5,078
Extractions	..	..	..	..	..	..	..	3,324
Fillings	..	..	..	..	..	..	..	787
Other Treatments (including Prophylaxis)	..	..	..	..	..	..	..	3,049
General Anaesthetics	..	..	..	..	..	..	..	2
Dentures	..	..	..	..	..	..	..	166
Denture Repairs	..	..	..	..	..	..	..	68

## CHILD WELFARE HOMES

Services in the Newcastle Health District were improved, particularly at Yawarra, Kurri Kurri. As in other institutions some of the surgeries were established as early as 1955. It is proposed that these will be progressively modernized. It is anticipated that the new Institution for Girls will be completed at Campbelltown in 1971. A dental clinic has been included in the plans.

Regular visits were maintained to the smaller homes by mobile clinics from the School Dental Service during school vacations. The result of regular treatment is readily appreciated in children who have been resident in these homes for any length of time. The main problem continues with inmates admitted in a neglected condition, mainly from the courts to the larger establishments.

*Services completed*

Examinations	..	..	..	..	..	..	..	3,312
New Cases	..	..	..	..	..	..	..	1,772
Total Cases	..	..	..	..	..	..	..	6,844
Extractions	..	..	..	..	..	..	..	1,811
Fillings	..	..	..	..	..	..	..	5,373
Other Treatments (including Prophylaxis)	..	..	..	..	..	..	..	4,861
General Anaesthetics	..	..	..	..	..	..	..	3
Dentures	..	..	..	..	..	..	..	249
Denture Repairs	..	..	..	..	..	..	..	75

## CONCLUSIONS

A Dental Services Committee appointed by the Minister for Health met regularly throughout the year. It consisted of representatives of the Australian Dental Association, the United Dental Hospital and the Health Department. A definite policy is being formulated as to the best method adequate dental services may be organized for all sections of the community. There was some misunderstanding as to the most profitable use which might be made of auxiliary personnel. Circumstances and conditions will no doubt clarify this in the future.

Adequate support was given to the principle of using school dental nurses in therapeutic programmes for school children. A comprehensive brief is being prepared by the Public Works Department for the Dental Nurses Training School. An excellent site has been obtained at Westmead adjacent to the proposed Westmead Hospital complex.

Fluoridation is progressing well in New South Wales. When Newcastle is fluoridated early in 1971, 3 million residents of this State will be drinking fluoridated water. Remarkable success in the achievement of dental health in young school children has already been demonstrated in Tamworth and other centres.

Concern must be expressed at the unsatisfactory dental health of quite a large proportion of migrant children. The attention of the Commonwealth authorities might be drawn to this factor, particularly when existing dental facilities are already over-committed.

## HEALTH DISTRICTS

### WESTERN METROPOLITAN HEALTH DISTRICT

*Medical Officer of Health:* T. F. RENNIE, M.B., Ch.B., D.P.H., F.A.C.M.A.

*Location:* 1st floor, 307 Church Street, Parramatta

This district commenced functioning on 1st July, 1969, the district comprises ten municipalities and two shires lying on the western periphery of Sydney. The population in the area is over 700,000 and it will continue to increase rapidly for the remainder of the century.

### STAFF

A Deputy Medical Officer of Health was appointed in June, an Assistant Nurse Inspector in July and an Assistant Medical Officer of Health was seconded to the district for 11 months of the year.

#### STAFF AS AT 31ST DECEMBER, 1970

Medical Officer of Health	..	..	..	..	..	..	1
Deputy Medical Officer of Health	..	..	..	..	..	..	1
Senior Medical Officers	..	..	..	..	..	..	3
Medical Officers	..	..	..	..	..	..	8
Principal Dental Officer	..	..	..	..	..	..	1
Dental Officers	..	..	..	..	..	..	5
Principal Psychologist	..	..	..	..	..	..	1
Psychologists	..	..	..	..	..	..	4
Social Workers	..	..	..	..	..	..	2
Speech Therapists	..	..	..	..	..	..	4
Child Health Sisters	..	..	..	..	..	..	17
Baby Health Sisters	..	..	..	..	..	..	52
Dental Nurses	..	..	..	..	..	..	4
Dental Assistants	..	..	..	..	..	..	6
Senior Health Inspector	..	..	..	..	..	..	1
Health Inspectors	..	..	..	..	..	..	4
Senior Food Inspector	..	..	..	..	..	..	1
Food Inspectors	..	..	..	..	..	..	3
Assistant Nurse Inspector	..	..	..	..	..	..	1
Health Education Officer	..	..	..	..	..	..	1
Clerk	..	..	..	..	..	..	1
Shorthandwriter/Typist	..	..	..	..	..	..	1
Telephonist/Typist	..	..	..	..	..	..	1
Office Assistants	..	..	..	..	..	..	4
							127

### GENERAL

During the 12 months covered by this report the establishment of the Health District and the training of staff new to the District have continued.

A notable event during the year was the conference of all staff of the Bureau of Maternal and Child Health working in the district. The conference was held at the Marsden Hospital Auditorium on 20th October, and the administration of Baby and Child Health Centres was formally handed over to the Medical Officer of Health and his staff.

Close liaison has been maintained with the State Planning Authority, the Hospitals Commission and the Division of Research and Planning of the Department, in making recommendations on the development of future health services for the southwest sector of Sydney.

The Medical Officer of Health has assumed numerous responsibilities in advising and planning future community health services. He represented the Minister for Health on the Cabinet-appointed subcommittee for Rapidly Developing Housing Areas. He was elected chairman of the Community Health Subcommittee for the new Liverpool Hospital, and has been involved in evaluating and planning future community health services in the Lidcombe and Penrith areas.

In September, the Minister for Health opened the extensions to the Baulkham Hills Baby Health Centre. Assistance was given in finalizing the plans for the combined Child Health Centre and Psychiatric Day Hospital to be constructed in the grounds of Blacktown Hospital. The acquisition of land at Emerton, Mt Druitt, suitable for a Health Centre, was successfully negotiated.

A medical officer was appointed to the Westmead Teachers College during the year and Health Education lectures have commenced at the college.

In order to give immediate aid to the Mt Druitt community, health district staff have undertaken to co-operate with the Parramatta Psychiatric Hospital, Brisbane Street Child Guidance Clinic, and the Department of Child and Social Welfare in providing health and social services from the Mt Druitt Government Centre.

The use of the Green Valley Baby Health Centre was made available to the Family Planning Association during evenings, and similar provisions are being made at the Mt Druitt Baby Health Centre.

Three medical officers assisted in the provision of first-aid and casualty facilities during the visit of Pope Paul VI.

## ENVIRONMENTAL SANITATION

The rapid development of housing estates within the district has led to a large increase in quantities of waste material requiring disposal. This factor, coupled with increased pollution problems, has resulted in much closer supervision being required in these matters.

- (1) *Garbage Depots.* Several large areas of land have been approved for use as garbage depots by local authorities and several more are pending. The trend appears to be towards the acquisition of large sites which will give an effective life of some years.

Reclamation schemes, using garbage as filling have been completed along the Parramatta River. Close supervision has been necessary over all council depots to ensure that the garbage is disposed of without nuisance.

- (2) *Nightsoil, Sewage, and Waste Water Disposal.* During 1970, Penrith City Council established a sewer station whereby all nightsoil pans and effluent tanker vehicles are emptied into the Metropolitan Water Sewerage and Drainage Board's sewer.

This facility has eliminated the need for council to bury nightsoil at its depot. The extension of sewerage services has resulted in a decline in the number of sanitary services within the district. Negotiations were commenced with two poultry slaughtering premises to install properly designed waste water treatment plant. These plants should be completed during 1971.

- (3) *Septic Tank Installations.* Owing to the pressure of work, site inspections in connection with septic tank applications were suspended in all areas except Liverpool city. This system appears to be functioning satisfactorily and check inspections of installed septic tanks have revealed that the requirements of the Board of Health are being generally observed.

- (4) *Noxious Trades.* The standard of the Noxious Trades premises has increased during the year, largely due to a system of follow-up inspections. Seven successful prosecutions were launched against traders for breaches of the Act and regulations. The fire at Riverstone Meat Works in October resulted in a district officer being assigned to supervise the disposal of some 40 tons of mutton in the firm's digester plant.

## Government Institutions and Hospitals

All institutions and hospitals within the district were inspected during the year and reports and recommendations submitted to the appropriate authorities.

## General Activities

The Australian Boy Scouts Jamboree, held at Leppington received a daily visit from district inspectors and this constant supervision resulted in an acceptable standard of hygiene being maintained.

TABLE 1—WORK PERFORMED BY HEALTH INSPECTORS, WESTERN METROPOLITAN HEALTH DISTRICT  
1-1-1970—31-12-1970

Abattoirs	..	..	..	..	..	..	..	..	..	30
Barber Shops	..	..	..	..	..	..	..	..	..	12
Caravan Parks, recreation grounds, etc.	..	..	..	..	..	..	..	..	..	40
Crematories	..	..	..	..	..	..	..	..	..	5
Consultations with L.A. officers and servants	..	..	..	..	..	..	..	..	..	215
Consultations with professional people	..	..	..	..	..	..	..	..	..	134
Courses attended	..	..	..	..	..	..	..	..	..	1
Dog Pounds	..	..	..	..	..	..	..	..	..	4
Institutions	..	..	..	..	..	..	..	..	..	17
Infectious and communicable diseases	..	..	..	..	..	..	..	..	..	10
Legal proceedings for Department—										
Fines	..	..	..	..	..	..	..	..	..	\$150
Costs	..	..	..	..	..	..	..	..	..	\$14
Lead Poison	..	..	..	..	..	..	..	..	..	3
Pig farms, poultry farms, dairies	..	..	..	..	..	..	..	..	..	25
Nuisance investigation	..	..	..	..	..	..	..	..	..	238
Noxious trades premises	..	..	..	..	..	..	..	..	..	190
River and stream pollution	..	..	..	..	..	..	..	..	..	87
Sanitary surveys	..	..	..	..	..	..	..	..	..	1
Shops and buildings	..	..	..	..	..	..	..	..	..	151
Schools	..	..	..	..	..	..	..	..	..	15
Swimming pools	..	..	..	..	..	..	..	..	..	45
Sanitary depots	..	..	..	..	..	..	..	..	..	142
Septic tanks—										
Applications dealt with	..	..	..	..	..	..	..	..	..	3,052
Approved	..	..	..	..	..	..	..	..	..	2,904
Refused	..	..	..	..	..	..	..	..	..	148
Existing	..	..	..	..	..	..	..	..	..	205
Manufacturers' designs examined	..	..	..	..	..	..	..	..	..	4
Manufacturers' premises inspected	..	..	..	..	..	..	..	..	..	11
Sewage treatment works inspected	..	..	..	..	..	..	..	..	..	132
Samples—										
Water	..	..	..	..	..	..	..	..	..	54
Effluent	..	..	..	..	..	..	..	..	..	129
Trade waste and industrial disposals	..	..	..	..	..	..	..	..	..	96
Unhealthy building land	..	..	..	..	..	..	..	..	..	5

### FOOD INSPECTION

A survey of all food premises within the district was continued during the year. Follow up action on defective conditions was commenced. This work has been hindered to some extent by the necessity to attend to complaints from the public regarding food. Four hundred and forty complaints were received. The majority concerned foreign matter in food.

Several local authority officers have expressed satisfaction with the closer liaison with departmental officers that has resulted from decentralization of the Food Branch.

A survey of possible dissemination of hydatid disease by the sale of offal pet food was carried out in the district. Thirty pet food shops were visited and the meat held for sale was inspected. The survey revealed that the sale of offal for pet food was not considered a significant threat in this district.

TABLE 2—PURE FOOD WORK, 1970

<i>Milk samples</i>									
Number taken	..	..	..	..	..	..	..	..	458
Number below standard			..	..	..	..	..	..	11
Number of warnings	..	..	..	..	..	..	..	..	4
Number of prosecutions completed			..	..	..	..	..	..	7
Amount of fines and costs	..	..	..	..	..	..	..	..	\$172
<i>Food samples</i>						<i>Meat</i>	<i>Other</i>	<i>Total</i>	
Number taken	..	..	..	..	..	649	71	720	
Number below standard			..	..	..	261	18	279	
Number of warnings	..	..	..	..	..	125	8	133	
Number of prosecutions completed			..	..	..	128	9	137	
Amount of fines and costs	..	..	..	..	..	\$5,784	\$158	\$5,942	
<i>Seizure and destruction of food</i>									
Amount	..	..	..	..	..	..	175 lb	78 tins	98 packets
<i>Premises</i>									
Number of inspections	..	..	..	..	..	..	..	..	1,988
Number of notices	..	..	..	..	..	..	..	..	241
Number of prosecutions completed	..	..	..	..	..	..	..	..	1
Amount of fines and costs	..	..	..	..	..	..	..	..	\$102
<i>General breaches</i>									
Number of prosecutions completed			..	..	..	..	..	..	40
Amount of fines and costs	..	..	..	..	..	..	..	..	\$1,225
<i>Other matters</i>									
Number of complaints investigated			..	..	..	..	..	..	440
Number of inspections—									
Departmental hospitals	..	..	..	..	..	..	..	..	4
Government institutions	..	..	..	..	..	..	..	..	7
Number of interviews, advisings			..	..	..	..	..	..	484
Number of field tests—									
Meat	..	..	..	..	..	..	..	..	1,109
Liquor	..	..	..	..	..	..	..	..	1,151
Total prosecutions completed	..	..	..	..	..	..	..	..	185
Total fines and costs	..	..	..	..	..	..	..	..	\$7,441

DENTAL SERVICES

Dental services are administered in the district by a principal dental officer. In addition to the staff mentioned at the beginning of the report, five dental officers under head office administration operate in this district in programmes of long standing, in Lidcombe Hospital, Department of Corrective Services and Child Welfare Department institutions. In the School Service one dental officer, two dental nurses, and two dental assistants have operated at schools in the district on loan from other districts or prior to transfer.

A major achievement of the year was the construction of a new three-surgery School Dental Clinic at Mt Druitt, which commenced operating on 31st August.

A site has also been selected and approved for a proposed dental nurses training school adjacent to Marsden Hospital, Westmead. This site has the best potential for a wide catchment area of children desirable for such an establishment.

A new surgery has been completed at Lidcombe Hospital and plans have been completed for a new surgery at Rydalmere Hospital. Some new equipment has been purchased for the surgery at Parramatta Hospital.

The new Silverwater Detention and Training Centre for Women which commenced operating early in the year, includes a new dental surgery, bringing the total of institution surgeries to ten.

Mobile school clinic programmes were interrupted during the year by the temporary transfer of staff to other districts. However, a programme in the Campbelltown area was completed by a unit from the South Coast District, and programmes in Blacktown and Auburn have been resumed.

During the year only 13 schools were visited by mobile clinics and of 1,724 children in the age group 6–9 years requiring treatment, 1,265 treatments were undertaken.

Established clinics continue operating at a satisfactory level with a continuous demand, which entails the use of waiting lists.

The service to State and departmental hospitals and institutions has been maintained at the usual level. However, resignations and transfers have resulted in the reduction of services to the Department of Corrective Services establishments at Parramatta and Silverwater, although an emergency service has been available at all times.

Co-operation of division's staff has been first class. Until the advent of a N.S.W. Dental Nurses' Training Scheme with a regular output of trained operators it will not be possible to claim that the dental problems of this district are under control.

TABLE 3—DENTAL SERVICES, 1970

Examinations	..	..	..	..	..	..	..	..	8,731
New cases	..	..	..	..	..	..	..	..	5,069
Repeat cases	..	..	..	..	..	..	..	..	16,448
Total cases	..	..	..	..	..	..	..	..	21,517
Extractions	..	..	..	..	..	..	..	..	9,231
Fillings	..	..	..	..	..	..	..	..	19,272
Other treatments	..	..	..	..	..	..	..	..	21,078
General anaesthetics	..	..	..	..	..	..	..	..	69
Dentures	..	..	..	..	..	..	..	..	321
Repairs	..	..	..	..	..	..	..	..	100
Orthodontic appliances	..	..	..	..	..	..	..	..	18

### COMMUNICABLE DISEASES

There were no large outbreaks of infectious disease in the district, except for a large outbreak of infectious hepatitis in the Tregear district during the last month of the year.

Investigations and preventive action in outbreaks of infectious hepatitis were undertaken in various schools.

Information, obtained informally, on the notification rate of venereal disease presenting at one of the large hospitals in the district indicate this figure to be far below the actual incidence.

Numerous investigations of alleged food poisoning were also undertaken.

TABLE 4—COMMUNICABLE DISEASES WITH DEATHS, 1970

	<i>Cases</i>							<i>Deaths</i>
Acute Anterior Poliomyelitis	..	..	..	..	..	..	..	..
Anthrax	..	..	..	..	..	..	..	..
Arbovirus diseases	..	..	..	..	..	..	..	..
Brucellosis	..	..	..	..	..	..	2	..
Diphtheria	..	..	..	..	..	..	..	..
Encephalitis	..	..	..	..	..	..	5	3
Hydatid disease	..	..	..	..	..	..	..	..
Infantile Diarrhoea	..	..	..	..	..	..	124	8
Infectious Hepatitis	..	..	..	..	..	..	646	2
Leptospirosis	..	..	..	..	..	..	2	..
Malaria	..	..	..	..	..	..	25	..
Ornithosis	..	..	..	..	..	..	1	..
Paratyphoid	..	..	..	..	..	..	..	..
"Q" Fever	..	..	..	..	..	..	1	..
Tetanus	..	..	..	..	..	..	..	..
Typhoid Fever	..	..	..	..	..	..	..	..
Typhus Fever	..	..	..	..	..	..	..	..
Syphilis	..	..	..	..	..	..	8	..
Gonorrhoea	..	..	..	..	..	..	107	..

### BABY HEALTH CENTRES

Responsibility for administering the activities of the forty-four Baby Health Centres in the Western Metropolitan Health District was gradually assumed from 1st January. The share of responsibility increased with the appointment of an assistant nurse inspector for the district.

The first conference for nurses in the Western Metropolitan Health District was held on 20th October. The aim of the conference was to present the concept and function of the new Western Metropolitan Health District, to outline developments in maternal and child health services and to provide a channel of communication for district staff.

Three staff meetings were held during November. One meeting for nurses in each Child Health area. The Director and Nursing Supervisor of the Bureau of Maternal and Child Health discussed with the nurses the proposed changes and developments of bureau services.

Extensions to Baulkham Hills Baby Health Centre were completed and opened by the Minister of Health on 18th September, 1970.

Staff was able to be increased by 1/5 units at three Baby Health Centres because of growth in attendance.

Fifty inspections were undertaken of Baby Health Centres between July and December.

Following a request from Camden District Hospital assistance was given in planning and presenting the first preparation for motherhood classes held at the hospital.

On 24th August, a clinic conducted by the Family Planning Association commenced at Green Valley Baby Health Centre. Sessions are held in the evenings on a weekly basis. The attendance is 7-10 patients per session.

TABLE 5—BABY HEALTH CENTRE ACTIVITIES, 1970

<i>Number of Baby Health Centres</i>	..	..	..	..	..	..	44
<i>Total attendances</i>	..	..	..	..	..	..	198,458*
Under 1 year	..	..	..	..	..	..	175,186
Over 1 year and under 2 years	..	..	..	..	..	..	14,683
Over 2 years	..	..	..	..	..	..	7,648
<i>Total babies attending for first time</i>	..	..	..	..	..	..	15,906*
Under 1 year	..	..	..	..	..	..	14,699
Aborigines	..	..	..	..	..	..	36
Migrants	..	..	..	..	..	..	1,467
* Includes miscellaneous attendances							
<i>Home visiting</i>							
Total time spent home visiting (hours)	..	..	..	..	..	..	3,703
Number of first visits	..	..	..	..	..	..	4,352
Number of subsequent visits	..	..	..	..	..	..	5,939
Number of mothers seen in hospital	..	..	..	..	..	..	8,122
<i>Number of individual attendances at Centres</i>	..	..	..	..	..	..	29,720

## HEALTH EDUCATION

Health education activities in the Western Metropolitan Health District have been concentrated on the Municipality of Blacktown, although responsibility for the whole district has been assumed.

A course of eleven lectures for preschool kindergarten personnel was held during the year with a satisfactory response. A follow-up course was also held for personnel who attended the 1969 series of lectures.

Because of the many medico-social problems being encountered in the Mt Druitt housing area a series of Health Education lectures were commenced for parents of schoolchildren. However, they were abandoned due to lack of response.

Following the publication of the survey carried out by the Nutrition Section of the Department of Health, efforts were made in collaboration with the senior nutritionist to promulgate both the recommendations of the survey, and the services offered by the Department.

There were numerous requests for lectures on drugs to be given to schools and community organizations. Lectures were also given to students undertaking Technical College Secretarial courses, nurses undertaking the Public Health Inservice course, and the postgraduate course of the N.S.W. College of Nursing.

In collaboration with the Health Education Officer, N.S.W. State Cancer Council, Health Exhibitions comprising displays and continuous film showing, were held at the Parramatta and Castle Hill Agricultural Shows. Films on general health topics were shown in the Out-Patients Department of the Blacktown District Hospital on ante-natal clinic days during the latter part of 1970.

A survey of medical practitioners was undertaken in five local authority areas, and the results were submitted to the Westmead Hospital Committee. An accident survey was commenced at Blacktown District Hospital, and assistance was given with a hepatitis survey in the Mt Druitt area.

## PARRAMATTA CHILD HEALTH CENTRE

The total number of schools where medical examinations were carried out fell from 61 in 1969 to 55 this year. However, the total number of children examined increased from 18,691 to 19,090.

Because of the heavy demand for psychiatrist patient consultations the Medical Officer-in-Charge of the centre instituted a new procedure whereby the consultant psychiatrist has made more time available for consultation to the medical officers for the discussion of management of cases. This has resulted in a greater number of cases being referred directly for treatment by the Child Guidance Team rather than first being seen by a psychiatrist; and where only 17 per cent of cases in 1969 were referred directly to the Team this increased to 49 per cent in 1970.

The Child Guidance team continued to take part in post-graduate training. The psychiatric interviews were attended by candidates for membership of the College of Psychiatrists and fifth year medical students. The social workers supervised two social work students from the University of N.S.W.

The senior psychologist continued to conduct a weekly therapeutic group for emotionally disturbed mothers.

A Well Baby clinic was conducted at Auburn Baby Health Centre for the first 6 months of the year and one at Granville Baby Health Centre for the whole of the year. A total of 317 children were examined and 60 defects notified.

A diagnostic team from the centre again visited Bathurst during the year and twenty cases were assessed.

TABLE 6—PARRAMATTA CHILD HEALTH CENTRE, 1970

Number of schools in centre area	..	..	..	..	..	88
Number of schools where examinations undertaken	..	..				55
School population in area	..	..	..	..	..	49,009
Number of children examined	..	..	..	..	..	19,090
Primary school full examinations by Medical Officers	..	..	..			5,122
Review examinations by Medical Officers and Nurses	..	..	..			7,456
Review Examinations by Nurses	..	..	..	..	..	1,781
High School Review Examinations	..	..	..	..	..	6,512
Total number of defects notified	..	..	..	..	..	254
Medical Officer appointments	..	..	..	..	..	1,345
Parent Interviews by Medical Officers	..	..	..	..	..	2,613
Home visits by nurses for follow-up	..	..	..	..	..	1,193
Hearing clinic cases investigated	..	..	..	..	..	892
Special Schools visited	..	..	..	..	..	6
Nursery and Preschool Kindergartens examinations	..	..	..			964

#### CABRAMATTA CHILD HEALTH CENTRE

The school population in the health centre area is 60,831. During 1970 only 53 schools of a total of 98 were visited. This was similar to the previous 2 years and due to a large school population and the inability to examine all schools yearly.

Visits were made to nine special schools and units within the area. The number of preschool kindergartens visited during the year was five.

The Well Baby clinic at the Cabramatta Baby Health Centre continued this year; 229 new cases and 36 reviews were seen, and 135 defects notified.

The Child Guidance clinic case load for the year was 184. A psychiatrist, one of a panel, visited the clinic, one half-day a week, on a consultative basis.

At the Speech Therapy clinic there were 1,956 attendances. During the year an opportunity language class was commenced in the adjacent Cabramatta Public School. A speech therapist attended this class on two mornings each week. A new specialized course for stammerers was carried out.

During October a diagnostic team, again visited Griffith where 42 cases were assessed.

TABLE 7—CABRAMATTA CHILD HEALTH CENTRE, 1970

Number of schools in centre area	..	..	..	..	..	98
Number of schools where examinations undertaken	..	..				53
School population in area	..	..	..	..	..	60,831
Number of children examined	..	..	..	..	..	13,921
Primary school full examinations by Medical officers	..	..	..			5,626
Review examinations by Medical Officers and Nurses	..	..	..			17,043
Review examinations by Nurses	..	..	..	..	..	2,010
High School Review examinations	..	..	..	..	..	8,491
Total number of defects notified	..	..	..	..	..	881
Medical Officer appointments	..	..	..	..	..	706
Parent interviews by Medical Officers	..	..	..	..	..	1,360
Home visits by nurses for follow up	..	..	..	..	..	1,892
Hearing clinic cases investigated	..	..	..	..	..	281
Special schools visited	..	..	..	..	..	10
Nursery and Preschool Kindergartens examinations	..	..	..			119

### BLACKTOWN CHILD HEALTH CENTRE AREA

The construction of a Child Health Centre is proposed within the Blacktown Hospital grounds and it is proposed that the centre will meet the needs of the children from the Blacktown, Penrith, and Windsor Municipalities.

During the year two school medical officers have worked in the area using the Blacktown Baby Health Centre as a base, and for child and parent consultations.

Well Baby clinics were conducted at the Blacktown and Mt Druitt Baby Health Centres. A total of 665 children were examined and 114 defects were notified.

A counselling clinic was conducted by the senior school medical officer at Mt Druitt Baby Health Centre, and at Whalan and Tregear Schools. A total of 56 counselling sessions were given. At Blacktown Baby Health Centre 207 counselling sessions were given.

Sixty prenatal clinics were held at the Blacktown and Mt Druitt Baby Health Centre and eighteen Preparation for Motherhood lectures were given.

The Senior Medical Officer attended twenty-seven meetings of School Councillors and with a psychiatrist and social worker from Parramatta Psychiatric Hospital held twenty-six sessions for mothers with emotionally disturbed children.

TABLE 8—BLACKTOWN CHILD HEALTH CENTRE AREA, 1970

Number of schools in centre area	..	..	..	..	..	110
Number of Preschools and Kindergartens	..	..	..	..	..	16
Number of schools where examinations undertaken	..	..	..	..	..	26
Number of schools where partial examinations undertaken	..	..	..	..	..	13
Number of children examined	..	..	..	..	..	5,798
Primary school full examinations by Medical Officers	..	..	..	..	..	2,890
Review examinations by Medical Officers and Nurses	..	..	..	..	..	1,214
Review examinations by Nurses	..	..	..	..	..	6,664
High School review examinations	..	..	..	..	..	696
Parent interviews by Medical Officers	..	..	..	..	..	1,002
Home visits by nurses	..	..	..	..	..	845
Hearing clinic cases investigated	..	..	..	..	..	181
Nursery and Preschool Kindergartens examinations	..	..	..	..	..	200

### WESTMEAD TEACHERS COLLEGE

A full-time medical officer was appointed to the Westmead Teachers College and a course in Health Education was commenced for the 2nd year trainees.

The medical officer also undertook medical examinations for appointees to the Department of Education, and was available for medical consultations. The total number of student visits for first-aid, medical advice, examination and counselling was 424.

### SCHOOL SHIRES SCHEME

School medical examinations were carried out under the Shires Scheme in the city of Campbelltown, the Municipality of Camden and the Shire of Colo. A total of 4,150 children were examined and 1,870 defects were noted.

### PUBLICATIONS BY STAFF MEMBERS

“Infectious Hepatitis—Report of an Outbreak, Apparently Water-borne, in an Institution”; T. F. Rennie (1970), *Med.J.Aust.*, 2: 135.

“Childhood Immunization Computer Scheme”; P. J. Christopher (1970), *Med.J.Aust.*, 1: 668.

“Diphtheria in a Welfare Home”; V. H. Vernon and P. J. Christopher (1970), *Med.J.Aust.*, 1: 418.

“Hydated Disease Notifications in New South Wales”; P. J. Christopher, and W. A. Lopez (1970), *Med.J.Aust.*, 1: 54.

“Typhoid Carriage in Pregnancy with Infection of Neonate”; M. L. Freedman, P. Christopher, C. R. Boughton, M. Lucey, R. Freeman, D. Hansman (1970), *Lancet*, pp. 310–311.

## NEWCASTLE HEALTH DISTRICT

*Medical Officer of Health:* Dr H. R. DUGDALE—retired in October 1970

*Deputy Medical Officer of Health:* Dr H. P. SWAN—Acting Medical Officer of Health—October to end of year

*Location:* The Newcastle Health District comprises nine municipalities, of which Newcastle city is by far the largest, and fourteen shires. It extends from the Hawkesbury River in the south to the northern boundary of the Macleay Shire, where it meets the North Coast Health District. The Western and North Western Health Districts form the inland boundary.

### STAFF

- 1 Assistant Medical Officer of Health
- 1 Psychiatrist,
- 3 Psychologists (one part time)
- 2 Social Workers
- 2 Speech Therapists
- 1 Senior School Medical Officer
- 4 School Medical Officers (one part time)
- 7 School Nurses
- 1 Senior Food Inspector
- 1 Food Inspector
- 1 Senior Health Inspector
- 4 Health Inspectors
- 1 Assistant Nurse Inspector—retired in April 1970
- 5 Tuberculosis Nurses
- 25 Baby Health Centre Sisters
- 1 Clerk
- 1 Shorthandwriter-Typist
- 1 Typist
- 3 Office Assistants

### INFECTIOUS DISEASES

Infectious hepatitis again headed the list of notifiable diseases. There were three cases of malaria notified, a reduction of two since last annual report. There were no cases of diphtheria.

TABLE 1—Communicable Diseases with deaths 1969–1970

Disease								1969 Cases	Deaths	1970 Cases	Deaths
Brucellosis	..	..	..	..	..	..	..	3	..	4	..
Diphtheria	..	..	..	..	..	..	..	..	..	..	..
Encephalitis Viral	..	..	..	..	..	..	..	..	..	6	..
Diarrhoea (Infantile)	..	..	..	..	..	..	..	11	..	37	1
Infectious Hepatitis	..	..	..	..	..	..	..	327	..	312	1
Leptospirosis	..	..	..	..	..	..	..	2	..	..	..
Tetanus	..	..	..	..	..	..	..	..	..	2	1
Tuberculosis	..	..	..	..	..	..	..	66	..	58	..
Typhoid Fever	..	..	..	..	..	..	..	1	..	..	..
Syphilis	..	..	..	..	..	..	..	18	..	9	..
Gonorrhoea	..	..	..	..	..	..	..	144	..	138	..
“Q” Fever	..	..	..	..	..	..	..	1	..	1	..
Malaria	..	..	..	..	..	..	..	5	..	3	..

### ENVIRONMENTAL HYGIENE

#### Water Supplies

Quality of water supplies was under constant surveillance. A new treatment plant came into operation at Singleton and augmentation of the Hunter District Water Board plant was carried out to ensure adequate supply for the Newcastle, Maitland and Cessnock areas.

Equipment is being installed to add fluoride to the Hunter District Water Board’s supply and should come into operation in the coming year.

Wyong Shire water supply continues to operate in a satisfactory manner with the addition of fluoride.

## Pollution

Three "package" sewage treatment plants have replaced numerous septic tanks which were discharging directly into the Hunter River from the industrial complex, thus reducing to some degree pollution of the river.

Further meetings of the Hunter River Water Pollution Advisory Committee were held during the year and the discharge of various wastes from proposed industries were discussed with the view of controlling quality of effluent discharges.

An advisory committee of interested statutory bodies was established for Lake Macquarie and the first meeting was held on the 18th September, 1970.

## Sewerage

New sewerage schemes came into operation at The Entrance and Merriwa and a number of sites were considered for future treatment plants to serve Gosford, Denman, Bulahdelah, Tea Gardens, Harrington, Laurieton and Crescent Head.

Routine Inspections and Investigations	1969	1970
Complaints—		
Ministerial .. .. .	41	35
Head Office .. .. .	46	52
Local .. .. .	302	341
Barber Shops .. .. .	21	18
Dairy Inspections .. .. .	6	..
Beach Pollution—		
Investigations .. .. .	18	14
Re-inspections .. .. .	29	38
Water Supplies—		
Investigations and Surveys .. .. .	10	18
Inspections .. .. .	36	54
Water Samples .. .. .	106	120
Noxious Trades—		
Licences Issued .. .. .	46	21
New Premises .. .. .	12	23
Inspections .. .. .	336	320
Unhealthy Building Land—		
Proposed Proclamations .. .. .	2	3
Site Inspections .. .. .	34	43
Sanitary Surveys—		
Inspections .. .. .	1	1
Public School Inspections—	3	6
Public Health Act—		
Inspection of Dwellings .. .. .	12	26
Other Premises .. .. .	58	108
Sewerage—		
Proposed Plant Sites .. .. .	12	18
Inspection—Private Treatment Plants .. .. .	25	20
Inspection—Treatment Plants (Government) .. .. .	60	75
Local Government—		
Inspection, Existing Disposal Sites .. .. .	70	80
Samples Collected .. .. .	48	50
Scavenging Districts—Investigations .. .. .	10	12
Septic Tanks—		
Approved .. .. .	3,502	4,004
Office Refuse .. .. .	56	51
Inspection—Existing Septic Tanks .. .. .	432	510
Swimming Pools—		
Inspections .. .. .	62	56
Samples .. .. .	8	4
Private Schools .. .. .	2	..
Sanitary Depots—		
Proposed Nightsoil .. .. .	15	10
Proposed Garbage .. .. .	32	24
Inspections .. .. .	311	340
Camping Reserves—		
Inspections .. .. .	64	88
Water Samples .. .. .	42	36
Public Amenities, Parks and Reserves .. .. .	226	280
Institutions—		
Government and Aboriginal Reserves .. .. .	18	16
River Surveys .. .. .	3	2
Abattoir—		
Inspections .. .. .	19	21
Effluent Disposal .. .. .	11	21
Samples .. .. .	18	12
Cemetery Site Inspections—		
New .. .. .	6	1
Existing .. .. .	12	18
Crematorium—		
Proposed Sites .. .. .	3	1
Inspection .. .. .	9	6
Hunter River Pollution Advisory Committee Meetings .. .. .	Not available	3
Investigations .. .. .		30
Lake Macquarie Pollution Advisory Committee Meetings .. .. .		1
Investigations .. .. .		20

PURE FOOD

Close liaison was maintained with the local authorities in the twenty-three areas comprising the Newcastle Health District.

Lectures and demonstrations of food preparation, storage and handling were given to the personnel of various organizations and public bodies.

During 1970, 204 warning and advisory letters have been sent to traders, and a total of 66 prosecutions were successfully undertaken for a total amount of \$2032.50.

Seizures were placed over 10634 lb of food which was considered unfit for human consumption and this food was subsequently destroyed under supervision.

Ninety-six complaints from the public in regard to food were investigated.

Fifty milk samples and 592 food samples were submitted to the Government Analyst, and 400 meat samples and 30 spirit samples were tested.

Twelve inspections were made of departmental hospitals and four of child welfare and prison establishments.

TABLE 2

											1969	1970
Food Samples	..	..	..	..	..	..	..	..	..	..	674	642
Inspections	..	..	..	..	..	..	..	..	..	..	1,196	1,017
Notices	..	..	..	..	..	..	..	..	..	..	176	204
Complaints	..	..	..	..	..	..	..	..	..	..	105	96
Seizures	..	..	..	..	..	..	..	..	..	..	23,883 lb.	10,634 lb.
Prosecutions	..	..	..	..	..	..	..	..	..	..	53	66
Fines and Costs	..	..	..	..	..	..	..	..	..	..	\$1,922	\$2,032.50

TABLE 3—PRIVATE HOSPITALS ACT

											1969	1970
Inspections of Private Hospitals	..	..	..	..	..	..	..	..	..	..	47	16
Inspections of Rest Homes	..	..	..	..	..	..	..	..	..	..	124	54
Inspections of Proposed Sites	..	..	..	..	..	..	..	..	..	..	4	..

TABLE 4—MATERNAL AND BABY WELFARE

Attendance at Baby Health Centres

Year			Total	Hospital Visits	Home Visits	Individual Attendances
<i>Attendance at Baby Health Centres</i>						
1969	..	..	110,276	904	3,539	15,253
1970	..	..	117,207	..	4,187	16,821
<i>Attendances at Prenatal Clinics</i>						
1969	..	..	1,290	..	..	..
1970	..	..	1,116	..	..	..
<i>Premature Babies and Feeding Difficulties</i>						
1969	..	..	No. Notified ..	57	No. of Home Visits..	139
1970	..	..	No. Notified ..	82	No. of Home Visits..	290

TABLE 5—ASSISTANT NURSE INSPECTOR

							1969	1970
Inspections of Baby Health Centres	..	..	..	..	..	..	137	50
Sites for Proposed Centres	..	..	..	..	..	..	1	..
Interviews with Committees	..	..	..	..	..	..	6	..

TABLE 6—SCHOOL MEDICAL SERVICE

	1969	1970
Number of Schools .. .. .	599	496
Departmental Scheme .. .. .	191	165
Number of these examined .. .. .	176	162
Shires Scheme .. .. .	408	331
Number of these examined .. .. .	155	138
Full examinations by Medical Officers .. .. .	15,099	13,740
Review examinations by Medical Officers and Nurses .. .. .	20,116	17,529
Review examinations mainly conducted by nurses .. .. .	6,958	3,855
High Schools Review Examinations—		
Not referred to Medical Officers .. .. .	13,217	9,478
Referred to Medical Officers .. .. .	776	498
Total .. .. .	13,993	9,976

CHILD GUIDANCE CLINIC

There were several changes in the Child Guidance Clinic staff during 1970. There was a full time psychiatrist from April until the end of the year. There were two psychologists during the year except for a 3 month period. For nearly 6 months in the middle of the year, there were two social workers. These staff changes have entailed a complete new personnel in the Child Guidance Clinic with a resulting fall off in the work load due to settling in to the clinic.

The consultant psychologist has continued to work in the clinic and was a stabilizing factor during the staff changes.

Participation in the University Diploma Course in Clinical Psychology was continued in 1970 in providing cases for testing and therapy and lectures by the staff of the Child Health Centre.

TABLE 7

Case Load	1969	1970
New cases referred .. .. .	555	346
Cases from previous year .. .. .	216	120
Old cases re-opened .. .. .	89	57
Cases closed .. .. .	852	531
Cases attending and continuing to next year .. .. .	120	216

Results of Treatment (Closed Cases Only)	1969	1970
Diagnostic only: treatment not required or not offered .. .. .	347	Figures not available
Treatment offered but declined .. .. .	138	
Treatment given—results unsatisfactory .. .. .	56	
Treatment given—symptomatic improvement .. .. .	292	
Treatment satisfactory—good readjustment .. .. .	19	

TABLE 8—SPEECH THERAPY CLINIC

	1969	1970
Number of attendances .. .. .	3,198	2,229

TUBERCULOSIS CONTROL

Mass X-ray surveys conducted at various institutions in health district and Seventh Day Adventist Centre, Singleton Army Camp, Williamtown RAAF Base etc., also the Wyong and Gosford Electorate.

TB Nurses attended a two-week refresher course.

TABLE 9

Attendances	1969	1970
Clinic Sessions .. .. .	623	720
Total attendances .. .. .	15,381	14,722
Home visits .. .. .	3,168	3,051

### AIR POLLUTION

The Air Pollution Control Branch is represented in Newcastle by an Engineer who carries out local duties with respect to implementation of the N.S.W. Clean Air Act. A technical officer was appointed in 1970 to assist in the maintenance of instruments for the monitoring of air pollution in the district and other associated duties.

New plant, in the area and subject to approval from the Department under the Clean Air Act included a large battery of coke ovens, two crushing and screening plants, a new stoneware pipe kiln, two coal preparation plants and other smaller industries. These plants were approved subject to either the installation of suitable air pollution control equipment or the adoption of suitable refuse (from coal washing) disposal methods.

Industrial hygiene, radiation, agricultural health, noise, ergonomics and occupational health nursing functions were carried out in this area by visiting officers from Sydney.

### TEACHERS COLLEGE

The Teachers College was still understaffed in 1970 and further complicated by the retirement in March of the full time medical officer. The assistant medical officer of health was engaged at the college until a full time medical officer took up duty in December. The part-time medical officer continued as before.

TABLE 10

	1969	1970
Total enrolment .. .. .	1,487	1,684
Number of medical examinations .. .. .	453	470
Number of Health Education lectures per week .. .. .	22	14
Number of student visits for first aid, medical advice etc. ..	750	..
Number of student visits for counselling .. .. .	50	..
Number of student visits for fitness to resume after sick leave ..	40	..
Number of staff visits for first aid .. .. .	26	..

### SOUTH COAST HEALTH DISTRICT

*Medical Officer of Health:* Dr E. C. WALLACE, M.B., B.S., D.P.H.

*Deputy Medical Officer of Health:* Dr C. E. VAUGHAN, M.B., B.S., D.P.H.

*Headquarters:* 4th Floor, A.M.P. Building, Keira Street, Wollongong. Phone 288699

### STAFF

- 2 School Medical Officers (full time)
- 2 School Medical Officers (part-time)
- 1 Medical Officer (full time) (Wollongong Teachers College)
- 1 Medical Officer (part-time) (Wollongong Teachers College)
- 1 Forensic Medical Officer
- 1 Senior Pure Food Inspector
- 1 Pure Food Inspector
- 1 Senior Health Inspector
- 3 Health Inspectors
- 1 Health Education Officer
- 3 School Nurses
- 4 Tuberculosis Sisters
- 1 Assistant Nurse Inspector
- 2 Speech Therapists
- 11 Baby Health Centre Sisters (permanent)
- 8 Baby Health Centre Sisters (temporary)
- 2 Baby Health Centre Sisters (part-time)
- 1 Clerk
- 1 Air Pollution Engineer, Clean Air Act
- 1 Technical Officer, Clean Air Act
- 4 Office Assistants
- 1 Operator/Receptionist Chest Clinic

During the year there were six resignations, one transfer and eight additions to the staff. Two vacant positions remained unfilled.

DISTRICT

The District extends from Helensburgh in the north to the Victorian border in the south, and to the tablelands to adjoin the Australian Capital Territory. The District comprises the following local authority areas:

- Municipalities:* Bega, Bombala, Bowral, Cooma, Goulburn City, Kiama, Shellharbour, City of Greater Wollongong, Queenbeyan.
- Shires:* Bibbenluke, Crookwell, Eurobodalla, Gunning, Imlay, Mittagong Monaro, Mulwaree, Mumbulla, Shoalhaven, Snowy River, Tallaganda, Wingecarribee, Wollondilly, Yarrowlumla.

VITAL STATISTICS 1970

*Population*—The Population of the district at 30th June, 1970 was estimated at 354,260.

*Live Births*—There were 6,922 live births equal to a rate of 19.54 per 1,000 of population.

*Deaths*—Deaths numbered 2,802 equivalent to a rate of 7.91 per 1,000 of population.

*Infantile mortality*—Deaths under 1 year of age numbered 129 equivalent to a rate of 18.64 per 1,000 live births.

Of the total number of deaths of infants under 1 year of age 93 occurred within 1 week of birth and 100 within the 1st month. The corresponding rates per 1,000 live births for the two-age groups were 13.44 and 14.45 respectively.

*Still-births*—There were 101 still births equal to a rate of 14.38 per 1,000 total births (live and still).

COMMUNICABLE DISEASES

TABLE 1—NOTIFICATION OF COMMUNICABLE DISEASES AND DEATHS—SOUTH COAST HEALTH DISTRICT—1969/70

Disease	1969		1970	
	Case	Death	Case	Death
Anthrax .. .. .	1	..	..	..
Brucellosis .. .. .	1	..	1	..
Diphtheria .. .. .	2	..	..	..
Encephalitis .. .. .	1	1	1	1
Hydatid Disease .. .. .	5	..	7	..
Infantile Diarrhoea .. .. .	32	4	10	1
Infectious Hepatitis .. .. .	385	1	335	3
Malaria .. .. .	3	..	1	..
Ornithosis .. .. .	..	..	1	..
Paratyphoid .. .. .	2	..	..	..
“Q” Fever .. .. .	1	..	..	..
Typhoid Fever .. .. .	1	..	..	..
Syphilis .. .. .	5	..	1	..
Gonorrhoea .. .. .	50	..	58	..
Tuberculosis .. .. .	62	..	48	..

Encephalitis

This death occurred within 48 hours of onset of symptoms and within 3 days of the patient’s arrival from outside this health district, for a holiday.

Hydatid Disease

Of the seven notifications three came from Goulburn and two from Crookwell.

Infectious Hepatitis

Notifications from the Municipality of Shellharbour continued at a high level, and seventy-six of these were reported from Warilla.

TABLE II—INCIDENCE OF INFECTION IN THE SOUTH COAST HEALTH DISTRICT

Area	Cases Reported	
	1969	1970
City of Wollongong .. .. .	84	119
Municipality of Shellharbour .. .	207	149
Rest of South Coast Health District .. .	94	67
Total .. .	385	335

Sabin Vaccination

Doses issued to councils during 1970—42,830

Tetanus Immunisation

Twenty-three tetanus injections were given to staff from the Department of Agriculture.

ENVIRONMENTAL HEALTH

TABLE III—ROUTINE INSPECTIONS AND INVESTIGATIONS SOUTH COAST HEALTH DISTRICT—1969–1970

	1969	1970
Water samples taken—		
drinking .. .. .	235	220
sewerage .. .. .	42	30
beach pollution .. .. .	30	30
river and lake pollution .. .. .	101	70
swimming pools .. .. .	10	12
Water inspections—		
catchment areas .. .. .	11	8
chlorination plants .. .. .	4	4
flouridation plants .. .. .	10	10
reservoirs .. .. .	9	6
filtration plants .. .. .	3	3
Sewerage works—		
proposed .. .. .	3	4
in operation .. .. .	28	30
—effluent disposal .. .. .	19	30
tipping station .. .. .	1	..
Institutions and Aboriginal Settlements—inspection	13	8
Private schools—inspections .. .. .	1	..
River pollution—surveys .. .. .	16	12
Beach pollution—surveys .. .. .	7	8
Investigation of infectious diseases .. .. .	7	8
Dwellings (under Public Health Act) .. .. .	145	12
Noxious trades—		
new premises .. .. .	12	1
shop premises .. .. .	..	..
reinspection .. .. .	96	90
Sanitary depots—		
proposed .. .. .	8	3
inspection .. .. .	186	96
vehicle inspection .. .. .	19	20
Camping reserves—inspections .. .. .	63	70
Alpine lodges .. .. .	3	15
Migrant hostels .. .. .	1	1
Septic tank inspections—		
refused .. .. .	69	44
processed .. .. .	2,239	2,487
tank inspections .. .. .	130	220
site inspections .. .. .	1,359	1,506
Septic tank manufacturing .. .. .	12	10
Complaints dealt with .. .. .	90	86
Barber shops—inspections .. .. .	18	22
Health Inspector Group Addresses .. .. .	..	..
Surveys on behalf of Local Authorities .. .. .	1	..
Council Committees Addressed .. .. .	3	3
Civil Organizations addressed .. .. .	3	..
Slaughtering premises inspected—		
meat .. .. .	40	30
poultry .. .. .	5	3
Poultry abattoirs—waste disposal .. .. .	6	6
Dairy Inspections .. .. .	1	..
Scavenging Districts Investigated .. .. .	7	5
New Cemetery Sites .. .. .	3	..
Unhealthy Building Land Inspections .. .. .	8	8
Canning Factories .. .. .	1	..
Cheese Factories .. .. .	6	7
Funeral Parlours .. .. .	1	4
Licensed premises .. .. .	15	10
Lodging Premises .. .. .	7	..
Shop Premises .. .. .	64	80
Skin and Hide Premises .. .. .	4	6
Prosecutions .. .. .	1	..

### Comment

Investigation of odour nuisance, effluent disposal problems and possibility of pollution of town water supplies from a major pig rearing farm have been carried out over a considerable part of the year and at this stage the investigation is nearing completion and recommendations to the company are in process of being implemented.

While the farm in question is the largest pig rearing establishment in this country (static animal population of 20,000, and annual turnover of 80,000 animals) the problems associated with the establishment have been studied with view to implementation of nuisance and pollution control on other similar farms proposed to be established in the area.

The experience gained during investigations has been much sort after by persons proposing to establish similar types of farms.

The problem of river/creek pollution from discharge of sewerage waste and septic tank effluent has been under investigation, with particular emphasis being placed on the possibilities of major pollution of the Murrumbidgee River by discharge of sewerage effluent from Canberra and of pollution of creeks used for drinking water in the Kosciusko State Park and adjacent areas. Positive identification of pollution rendering creeks unfit to be used for drinking has been made and appropriate action taken.

### PURE FOOD WORK

TABLE IV—SHOWING SAMPLING, SEIZURES, PROSECUTIONS, INSPECTIONS ETC. 1969–1970

	1969	1970
<i>Milk Samples—</i>		
Number Taken .. .. .	45	25
Number Below Standard .. .. .	..	1
Warnings .. .. .	..	1
Prosecutions .. .. .	2	..
Fines and Costs .. .. .	\$44	..
<i>Food and Drug Samples—</i>		
Number Taken .. .. .	314	574
Below Standard .. .. .	39	85
Warnings .. .. .	15	54
Prosecutions .. .. .	36	95
Fines and Costs .. . . .	\$1,211	\$3,476
<i>Food Samples Field Tested—</i>		
Meat .. .. .	764	880
Spirits .. .. .	2,322	4,140
<i>Seizure of Food—</i>		
Quantity (in lbs) .. .. .	40	147
<i>Premises—</i>		
Number of Inspections .. .. .	1,613	1,932
Number of Notices issued .. .. .	588	524
Prosecutions .. .. .	..	3
Fines and Costs .. .. .	..	\$256
<i>General Breaches—</i>		
Prosecutions .. .. .	25	45
Fines and Costs .. .. .	\$493	\$981
<i>Action under other Acts—</i>		
Prosecutions .. .. .	1	..
Fines and Costs .. .. .	\$50	..
<i>General—</i>		
Complaints Investigated .. .. .	55	147
Enquiries, Interviews, Advisory Services .. .. .	467	822
Inspection of Departmental Hospitals .. .. .	2	2
Inspection of Child Welfare and Prison Estates .. .. .	4	7
Shows, Race Meetings, Functions, etc. .. .. .	2	..
Prosecutions Recommended .. .. .	65	143
Total Fines and Costs .. .. .	\$1,788	\$4,713

### Comment

Work output in all sections showed an increase on last year particularly sampling, premises inspected, warnings issued, prosecutions instituted, complaints received and investigated and general enquiries.

Two facets of work which received particular attention were—

- The liquor industry—in relation to the adulteration of wine and spirits and inspection of licensed premises generally.
- The large number of food premises which still have either unsatisfactory or no washing facilities.

In other respects the work carried out was similar to previous years.

TUBERCULOSIS

TABLE V—SUMMARY OF WORK CARRIED OUT AT CLINICS DURING 1970

	Wollongong	Shoalhaven (Nowra)	Goulburn	Moruya	Bateman's Bay	Bega	Cooma	Q. V. Hospital Picton	Total
Total Attendances .. .. .	15,991	759	1,024	98	40	303	137	424	18,776
Proven Pulmonary TB .. .. .	956	74	34	7	4	27	11	37	1,150
Proven Extra Pulmonary TB .. .. .	37	Nil	1	1	Nil	..	2	4	45
Inactive TB (all forms) .. .. .	1,378	96	179	27	4	66	28	67	1,845
Newly notified TB cases .. .. .	31	Nil	1	1	Nil	4	..	..	37
Contacts .. .. .	6,413	491	387	20	17	134	68	149	7,679
Others .. .. .	7,176	98	422	42	15	72	28	167	8,020
Number of X-rays—									
(A) TB .. .. .	2,169	160	652	78	23	213	116	106	3,517
(B) Non TB .. .. .	7,448	318	..	..	..	..	..	104	7,870
Bacterial Investigation .. .. .	3,917	Nil	73	8	4	39	22	..	4,063
Other Services .. .. .	712	5	200	8	23	111	41	7	1,107
Cases Notified by Clinic .. .. .	41	Nil	Nil	1	..	4	..	..	46
Visits .. .. .	1,857	114	18	2	1	17	9	41	2,059

Comment

Following resignation of the operator/receptionist (70mm X-rays) at the Wollongong Chest Clinic in April, 1970 the services of operators on a part-time basis were supplied from the Chest Centre until the further appointment of a full time operator/receptionist was made on 8-9-1970.

Attendances are still increasing at the Wollongong Chest Clinic—namely 15,991—as compared with 15,971 in 1969.

MATERNAL AND CHILD HEALTH

1. Maternal and Infant Care

The work load on the staff of this Section has increased again as the following table indicates.

TABLE VI—ATTENDANCES AT BABY HEALTH CENTRES HOSPITAL AND HOME VISITS

	1969	1970
<i>Number of Baby Health Centres</i> .. .. .	53	53
<i>Total Attendances</i> .. .. .	85,535*	90,476*
Under 1 year .. .. .	75,448	79,678
Over 1 year, under 2 years .. .. .	6,784	7,791
Over 2 years .. .. .	3,151	3,007
<i>Total babies attending for First Time—</i> .. .. .	6,892*	7,222*
Under 1 year .. .. .	6,033	6,203
Aborigines .. .. .	29	107
Migrants .. .. .	565	440
<i>Home Visiting—</i>		
Total time spent home visiting (hours) .. .. .	2,750	3,030
Number of 1st visits .. .. .	1,654	1,720
Number of subsequent visits .. .. .	3,300	4,421
Number of mothers seen in hospital .. .. .	4,942	5,037
Number of individual attendances at Centres .. .. .	12,447	13,381

\* Includes miscellaneous attendances

Services in the Queanbeyan circuit were curtailed between the retirement of the sister-in-charge in May, and the appointment of a new sister in September. A reduced service to Queanbeyan Baby Health Centre only was given by a sister from the Goulburn circuit during this period.

The Cooma circuit continues to need assistance, but efforts to recruit staff locally for the part time vacancy have been unsuccessful.

Aboriginal infant and child care in the South Coast area has been improved by increasing the time available for home visiting in the Bateman's Bay circuit, and by the appointment by the bureau of a community nurse for the South Coast.

The Wollongong-Shellharbour areas are expanding rapidly and a new centre for Figtree has been placed on the priority list.

In April, as a result of population movement from the town, services at Khancoban Baby Health Centre, staffed by a sister from the Victorian Health Department, were reduced.

Sixty-two routine inspections of centres were made.

The Annual Conference on Child Health was held at Port Kembla Hospital on 17th April, 1970. Speakers were Dr I. Dunlop (Paediatrician), Dr B. Ford (Wollongong Teachers College), Dr A. Douglas (Director, Bureau of Maternal and Child Health) and Miss E. Wilson (Nurse Supervisor, Bureau).

## 2. School Medical Service

A part-time medical officer resigned in August, and for the remainder of the year, the service was conducted by 2-2/5 medical officers and 3 nurses.

A school medical service was provided in eighteen of the twenty-one Shires and Municipalities, under the Shires Scheme.

The following tables summarize the work performed.

TABLE VII—MEDICAL EXAMINATIONS IN PRIMARY SCHOOLS

A. Wollongong, Shellharbour, Kiama							
Year	Total Number of Schools	Number of Schools Examined	Number of Children Enrolled	Number of full examinations	Number of review examinations	Number of children examined	Number of defects Notified
1969	80	50	29,862	3,496	7,647	11,143	1,678
1970	81	70	30,592	7,038	9,158	16,196	1,912
B. Performed under Shire Scheme							
1969	188	137	25,659	5,761	4,521	10,282	3,524
1970	187	117	22,736	3,911	4,719	8,630	2,454

TABLE VIII—MEDICAL EXAMINATIONS IN HIGH SCHOOLS

A. Wollongong, Shellharbour, Kiama							
Year	Schools	Schools Examined	Children Enrolled	Total number of Review Examinations		Children Examined	Defects Notified
				Not referred to M.O.	Referred to M.O.		
1969	20	19	14,584	4,645	675	5,320	576
1970	20	20	16,079	5,383	498	5,881	355
B. Performed under Shires Scheme							
1969	29	19	9,880	2,621	348	2,960	334
1970	31	22	11,693	2,794	358	3,152	332

## 3. Special Services

### (a) SPEECH THERAPY

Two full time speech therapists conducted the clinic in Wollongong, and depots at Nowra and Moss Vale.

A therapist attended the newly formed O.L. class at Berkeley for 3 mornings each week. This was reduced to 2 mornings weekly during last term. To assist with their work, the clinic took delivery of a language master in February.

TABLE IX—SUMMARY OF WORK PERFORMED AT ALL CLINICS

	1969	1970
Number of Initial Interviews .. .. .	169	230
Number of Individual Attendances .. .. .	2,387	2,430

## (b) ATYPICAL CHILDREN

The Child Health Conference has been held monthly at Wollongong Hospital throughout the year. This is a valuable mechanism for liaison between all agencies concerned with the medical, educational, social and behavioural aspects of atypical children.

In October, approval was given for a position for a social worker on the establishment of this office. This was sought, to extend the facilities for the management of atypical children. No appointment has yet been made to this vacancy.

TABLE X—RECORD OF CHILDREN INTERVIEWED AT DISTRICT OFFICE, OR DISCUSSED AT MONTHLY CHILD HEALTH CONFERENCE

	1969	1970
Interviews at District Office—		
Total number of Interviews .. .. .	114	147
Total number of New Cases .. .. .	108	146
Number of Cases discussed at Monthly Conference ..	58	98

## (c) HEARING CLINIC

This had not functioned between July 1966, and its resumption in March 1970. However, it was suspended after two clinics when the consultant resigned.

The two clinics demonstrated the need for a preliminary diagnostic unit of this nature in Wollongong.

## Closure of Buxton Primary School

It was reported on 24th July, that all children had been excluded from school because of scabies. This was given extensive coverage in the news media. Subsequent investigation of most children by Professor Lee of the School of Public Health and Tropical Medicine and staff of this Office failed to confirm the presence of any parasites. Children were readmitted from 31st July.

## WOLLONGONG TEACHERS COLLEGE

TABLE XI—SUMMARY OF WORK DONE BY COLLEGE MEDICAL OFFICER

Total enrolment .. .. .	762
Number of separate Health Education Courses .. .. .	3
Total number of lectures given per week .. .. .	13
Number of examination papers set .. .. .	2
Total examination papers and assignments corrected .. .. .	352
Number of health demonstration lessons arranged .. .. .	30
Number of students observed at Practice Teaching .. .. .	6
Number of student visits arranged in Health courses .. .. .	3
Number of guest speakers invited .. .. .	1
Student consultations for medical and surgical first aid .. .. .	401
Student consultations (counselling) .. .. .	25
Total number of students immunized .. .. .	100
Staff consultations for first aid .. .. .	50
Total number of students examined for Superannuation Benefits .. .. .	294
Number examined by College Medical Officers .. .. .	294

## Comment

The full-time Medical Officer who received the M.P.H. (Yale) in 1969 was granted Senior Medical Officer status in August.

Thirty Health Demonstration lessons were arranged and six students were supervised at Practice. Visits with students to Blood Bank, Pathology Department, Chest Clinic, Speech Therapy Clinic, and Department of Health, and lectures by the Police Department were organized.

Other activities have included duties as Secretary of the Committee on Drug Abuse, lecturing to Goulburn Teachers College students at Bundanoon, school children at Bowral, and school organizations in Wollongong, addressing the International Conference on Alcoholism and Drug Abuse, the local Medical Association, and Baby Health Centre Nurses Conference.

The Medical Officer was a member of the working party preparing a Teachers College Health Curriculum.

## PRIVATE HOSPITALS AND REST HOMES

TABLE XII

Category	Number Licensed		Number of Beds	
	1969	1970	1969	1970
Private Hospitals .. .. .	5	5	93 (+1 cot)	94 (+2 cots)
Rest Homes .. .. .	7	11	243	382
Total .. .. .	12	16	337	478

## Comment

Four rest homes were opened during the year (Crookwell, Queanbeyan, Nowra, Coniston). These provided an additional 139 beds, of which 109 were in new premises (Coniston, Queanbeyan).

Additions are in progress at two rest homes (Mt Warrigal, Bundanoon) to add a further seventeen beds, and at two private hospitals (Bowral, Thirroul) to add sixteen beds.

Thirty-three Routine inspections of private hospitals and rest homes were made.

Approval by the Board of Health, of plans for three rest homes, lapsed in accordance with regulation 7 (5).

## FORENSIC MEDICINE

A full-time forensic medical officer was appointed in January, to perform the forensic duties previously undertaken by government medical officers in the area. In addition to his forensic medical duties, this officer performs routine and other medical examinations on behalf of the Medical Examination Centre.

TABLE XIII—SUMMARY OF FORENSIC MEDICAL WORK

Number of autopsies performed .. .. .	254
Number of examinations for Police Department .. .. .	46
Number of appearances in Court (approx.).. .. .	30

TABLE XIV—MEDICAL EXAMINATIONS

	1969	1970
Performed for Medical Examination Centre and Department of Motor Transport .. .. .	180	194

## HEALTH EDUCATION

The Health Education officer resigned in May. A new appointee took up duties in November, and is involved in the production of a revised edition of the Health and Welfare Directory. He is a member of the Committee on Youth, Drugs and Related Problems. This committee of community leaders is concerned with drugs and their misuse.

TABLE XV—WORK OF HEALTH EDUCATION OFFICER

	Nov.-Dec.
People contacted/interviewed .. .. .	17
Meetings attended .. .. .	3
Membership of Committees .. .. .	1

## MISCELLANEOUS

### Social Health

Continued personal assistance by the Medical Officer of Health and his deputy was given to organizations striving to assist the needy, such as Birthright, the Marriage Guidance Committee, and the Psychiatric Rehabilitation Association.

The Psychiatric Rehabilitation Association's half way house "The Outlook" at Austinmer has functioned successfully throughout the year. It was officially opened by the Minister for Health in November.

### Health and Welfare Directory

Due to the ever-increasing population in this rapidly developing area, the increasing problems presenting and the growth of numerous organizations to cope with these problems, it was decided to revise and enlarge the Health and Welfare Directory, first compiled by this office in 1966. This directory has proved a most useful social tool, but unfortunately is now out of date and there are no more supplies. The work of compiling a new directory was undertaken by the Health Education officer. It is expected that it will be ready for publication in the first half of 1971 and, if financed by local organizations, will be distributed free of cost.

### Drugs

The Medical Officer of Health attended the International Congress on Alcoholism and Drug Addiction held in Sydney in February. Subsequently, to become better informed, he made personal visits to the Drug Referral Centre, King's Cross, The Salvation Army's Nithsdale Clinic, Wistaria House, Parramatta, and the Langton Clinic. He subsequently called a meeting in Wollongong to form a local committee to take on drug education, disseminate information, organize workshops, etc. The committee, formed on 19th May, met several times throughout the year and organized successful workshop conferences.

### Waterfront Problems

Following repeated incidents on the Port Kembla wharves, when wharfingers ceased work because of alleged health risk from industrial fumes, conferences were held with representatives from the organizations concerned, including the Division of Occupational Health. Instructions were given on testing, and communication procedures explained in the event of a recurrence of this problem.

### O. & M. Survey

As an outcome of an urgent request for additional office accommodation, Mr G. Slough and subsequently Mr Slattery and Mr Doyle visited this office early in the year to make a detailed assessment of requirements, and of office procedures. There was some difficulty in reaching agreement in the many matters raised, such as office planning, accommodation, method of filing, etc. However, most of the problems encountered are now resolved.

*Other Miscellaneous matters* include talks on the work of the Health Department given to local associations, attendances at meetings to the local inter-departmental committee on the handicapped, visits to proposed sewerage treatment works sites with offices of the Department of Public Works, consultation with divisional heads either by personal interview or by phone, organizing a conference of Baby Health Centre sisters, interviewing visitors.

### Visitors to the Office

These included Mr G. Slough, Assistant Under Secretary, Mr Ritchie, Sister Woods (Bureau of Child Health), Dr K. Harris, Director of Tuberculosis, Dr Noel Ure, Asthma Foundation of Queensland and Dr Thompson, Director of Tuberculosis for Queensland.

## WESTERN HEALTH DISTRICT

*Medical Officer of Health:* Dr B. M. NOLAN, L., L.M., R.C.P. and S.I., D.P.H., F.A.C.M.A.

*Deputy Medical Officer of Health:* Dr R. B. KILLOH, M.B., Ch.B., D.P.H. to 19-8-70. Dr M. A. ROZALLA, O.B.E., M.B., D.P.H., D.T.M. and H.

*Location:* George Street, Bathurst, 2795

### STAFF (as at 31-12-1970)

- 1 School Medical Officer
- 1 School Nurse
- 1 Senior Food Inspector
- 1 Senior Health Inspector
- 3 Health Inspectors
- 1 Assistant Nurse Inspector
- 14 Baby Health Centre Sisters
- 5 Baby Health Centre Sisters (part-time)
- 3 Tuberculosis Sisters
- 1 Public Health Nurse
- 1 Speech Therapist
- 2 Speech Therapists (part-time)
- 1 Senior Clerk
- 1 Shorthand/typist
- 1 Typist

### THE DISTRICT

The Western Health District adjoins the Western Metropolitan, Newcastle, and North-Western Health Districts to the east, the South Coast and Riverina Health Districts to the south, and Broken Hill District and the Queensland border to the north.

The district comprises thirteen municipalities and twenty-seven shire areas, as follows:

*Municipalities:* City of Bathurst, City of Blue Mountains, City of Orange, City of Lithgow, City of Dubbo, Condobolin, Cowra, Forbes, Mudgee, Narromine, Nyngan, Parkes, and Peak Hill.

*Shires:* Abercrombie, Blaxland, Bogan, Boree, Brewarrina, Canobolas, Cobar, Coolah, Coonabarabran, Coonamble, Cudgegong, Darling, Gilgandra, Goobang, Turon, Jemalong, Lachlan, Lyndhurst, Molong, Oberon, Rylstone, Talbragar, Timbregongie, Walgett, Warren, Waugoola, Wellington.

### VITAL STATISTICS

*Population.*—The population of the District at 30th June, 1970 was estimated at 272,210. Area of the district is 97,204 square miles.

*Live births.*—There were 5,823 live births equivalent to a rate of 21·39 per 1,000 of population.

*Deaths.*—There were 2,878 deaths equivalent to a rate of 10·57 per 1,000 of population.

*Infant mortality.*—Deaths under 1 year of age numbered 137 equivalent to a rate of 22·53 per 1,000 live births.

Of the total number of deaths of infants under 1 year of age, 91 occurred within 1 week of birth and 99 within the 1st month. The corresponding rates per 1,000 live births for the 2 age groups were 15·63 and 17·00 respectively.

*Stillbirths.*—There were 79 stillbirths, equal to a rate of 13·39 per 1,000 of all births (live and still).

### COMMUNICABLE DISEASES

During 1970 and the previous year the following communicable diseases were notified in the health district.

TABLE 1—NOTIFIED COMMUNICABLE DISEASES AND DEATHS, 1969–70

	1969		1970	
	Case	Death	Case	Death
Brucellosis .. .. .	..	..	8	..
Anthrax .. .. .	..	..	..	..
Infectious Hepatitis .. .. .	169	1	370	1
Infantile Diarrhoea .. .. .	35	10	17	6
Tuberculosis .. .. .	49	..	31	..
Virus Encephalitis .. .. .	3	..	4	1
Gonorrhoea .. .. .	26	..	17	..
Syphilis .. .. .	17	..	2	..
Hydatid Disease .. .. .	4	2	4	1
Tetanus .. .. .	1	..	1	..
Diphtheria .. .. .	..	..	..	..
Malaria .. .. .	1	..	4	..
“Q” Fever .. .. .	..	..	23	..
Leptospirosis .. .. .	..	..	8	..
Total .. .. .	305	13	489	9

There was a considerable increase in the zoonoses as compared with previous years. The receipt of late notifications and the great distances involved made follow-up and investigation of many cases difficult. This applied particularly to hydatid disease and “Q” fever.

Infectious Hepatitis

The number of cases notified was more than double that for the previous year. No apparent cause could be found but it was noticed in Bourke that a sudden increase in notifications occurred during the latter part of the year when many town functions attracting outside visitors were held.

The age incidence showed the usual pattern and the months from February to May had the lowest number of notifications.

“Q” Fever

An outbreak of “Q” fever occurred in Bourke during the first 6 months of the year. Twenty-three notifications were received and nearly all cases were meatworkers at the local abattoir. Following investigation it was thought that the most likely source of infection was pregnant cows and that employees were infected by the inhalation of aerosols produced in the killing section of the meatworks. Infection from the contaminated clothing of slaughtermen in the staff dining-room was also considered a possible hazard.

Leptospirosis

Four abattoir workers, two graziers, and one railway worker were among the eight cases notified.

Brucellosis

Eight adult male cases were notified, three were employed in meat-handling and the remainder were on the land.

Hydatid Disease

There were four cases notified one of which died. The case that died was a 70-year-old male who had generalized lesions with final rupture into the pleural cavity. Two of the other cases were unusual from the fact that in one the site of the lesion was the thigh and in the other the thyroid gland.

Malaria

Of the four cases notified three were imported from New Guinea and one from South East Asia.

PURE FOOD ADMINISTRATION

The “Pilot Scheme” whereby the three health inspectors carry out both food and environmental duties was continued. It became apparent that the standard of food work performed had dropped when compared with 2 years ago when there were two specialized food inspectors. The situation worsened when 2 of the health inspector positions became vacant for 4 months. The senior food inspector had the impossible task of policing the whole district with regard to food standards and technology.

There was a rise in the number of prosecutions for the year, details of which are shown on the following table.

TABLE II—PURE FOOD INSPECTIONS, SEIZURES, PROSECUTIONS, AND FINES, 1969–70

	1969	1970
Milk Samples—		
Number of milk samples taken for analysis .. .. .	24	25
Number of samples below standard .. .. .	..	..
Number of warnings issued .. .. .	..	..
Number of prosecutions .. .. .	..	..
Amount of fines and costs .. .. .	..	..
Food and Drugs (other than milk)—		
Number of samples taken for analysis .. .. .	39	42
Number of samples below standard .. .. .	13	18
Number of warnings .. .. .	1	8
Number of prosecutions .. .. .	9	10
Amount of fines and costs .. .. .	\$218	\$430
Seizures—		
Quantity of food and drugs unfit for human consumption, seized and destroyed ..	10 lbs	1,500 lb s
Premises—		
Number of inspections of premises (food and drug) .. .. .	1,267	988
Number of notices issued .. .. .	232	277
Number of prosecutions for unclean premises .. .. .	1	10
Amount of fines and costs .. .. .	\$142	\$758
General Breaches of the Act and Regulations—		
Number of prosecutions .. .. .	10	9
Amount of fines and costs .. .. .	\$416	\$671
Prosecutions recommended for Local Authorities .. .. .	6	3
Other Matters—		
Complaints investigated .. .. .	24	27
Enquiries, interviews, etc. .. .. .	500	620
Inspection of departmental hospitals .. .. .	1	1
Inspection of child welfare and prisons .. .. .	5	5
Shows, race meetings, etc. .. .. .	5	8
Prosecutions recommended .. .. .	27	33
Action under other Acts—		
Prosecutions .. .. .	1	1
Fines and costs .. .. .	\$142	\$52

An authorization in writing was obtained under section 56A of the Pure Food Act in relation to cafe premises in Bathurst.

Assistance and advice was given to Licensing Police in respect of licensed hotels, clubs, etc.

Analytical checks were made of the water supply of a number of poultry and cattle slaughtering premises following inspections. In some cases the water supply was found to be polluted and remedial action was taken to effect a clean and unpolluted water supply.

## ENVIRONMENTAL HYGIENE

The routine inspections of government institutions (prisons, child welfare homes, psychiatric hospital) and Aborigines reserves revealed that considerable improvement was made in a number of instances. At Peak Hill eight new dwellings were constructed and the vacated substandard dwellings were demolished. Ten existing Aborigine cottages at Whitton Park had been connected to council's sewer.

At the request of local authorities an investigation was carried out of the Burrendong Dam Trust area on the most practical means of drainage of the area, and advice was given on drainage problems. Joint inspections with the Public Works Department were carried out on two sewage treatment works sites on the lower Blue Mountains at Sun Valley and Mt Riverview.

A number of slaughtering yards in the district were inspected and measures taken to improve conditions. Following a request from head office a survey of skin and hide merchants was carried out.

Samples taken from Forbes water supply indicated bacteriological pollution. On the request of the council the waterworks were inspected, following which officers attended a council meeting to advise council to chlorinate the water supply.

The Orange Field Days and the Mount Panorama car racing track were inspected prior to each event during the year. Minor defects were reported to the organizers before the commencement of each event.

A report has been prepared on the condition of caravan parks and camping grounds in the district.

Particular attention has been given to the inspection of swimming pools in the area. A number of such inspections were made on request of the local authorities concerned.

During the year the Bathurst water supply showed evidence of contamination and the council advised the community to take precautionary measures. Council proceeded with action to build a filtration plant.

During the year the Shires of Timbrebongie, Lachlan, Waugoola, Warren, Talbragar, Gilgandra, Bogan, and Goobang were severely affected by a mice plague. Living conditions in some towns became almost intolerable. Heavy infestations of mice were associated with temporary grain storage depots. Wholesale destruction of crops took place and this office became concerned at the indiscriminate and excessive use of dangerous pesticides. Advice was given to all councils regarding environmental action to take. The overall health of the community was not seriously affected but many people suffered from skin rashes which were presumed to be caused by ectoparasites of the mice. Tests revealed that the mice were carrying “poultry” and “rat” mites and also the “European rat flea”.

TABLE III—ENVIRONMENTAL HYGIENE INSPECTIONS, 1969–70

	1969	1970
Inspection and reinspections of towns and villages .. .. .	8	11
Government institutions and Aborigine reserve inspections .. .. .	38	20
Inspections of buildings, hotels, public halls and hospitals, theatres, dwellings, barber shops, schools .. .. .	191	224
Abattoirs inspected .. .. .	7	17
Inspection of public amenities, camping grounds, parks, reserves, swimming pools ..	105	186
Joint inspections—Public Works Department .. .. .	20	5
Investigation of infectious diseases and nuisances .. .. .	71	101
Trade waste disposal and water pollution investigations .. .. .	21	37
Noxious trades premises inspected .. .. .	155	173
Garbage and nightsoil inspections .. .. .	191	200
Garbage and nightsoil, new sites recommended for Ministerial approval .. .. .	15	13
Investigation of water supplies and inspections .. .. .	48	45
Water samples collected for analysis .. .. .	85	94
Sewerage treatment works sites, existing and proposed .. .. .	62	40
Court attendances .. .. .	2	3
Septic tanks—towns and villages re: mass installations .. .. .	6	2
Septic tank sites—existing and proposed .. .. .	827	852
Septic tank applications dealt with .. .. .	1,051	891
Food premises inspected—see Pure Food Administration report .. .. .	193	..

The shortage of two health inspectors for 4 months considerably increased the work of the existing staff, however no noticeable reduction was evident in work performed.

TUBERCULOSIS CONTROL

TABLE IV—TUBERCULOSIS CONTROL WORK, 1969–70

	1969	1970
1. Proven pulmonary tuberculosis .. .. .	300	257
Proven extra pulmonary tuberculosis .. .. .	3	13
Inactive tuberculosis (all forms) .. .. .	869	1,011
Newly-notified tuberculosis cases .. .. .	49	31
Contacts .. .. .	3,158	2,355
Others .. .. .	1,159	1,133
	5,538	4,800
Total number of X-rays during month:		
2. (a) Tuberculosis .. .. .	2,081	1,911
(b) Non-tuberculosis .. .. .	43	..
3. Total number of bacteriological investigations .. .. .	554	452
4. Other services .. .. .	1,453	1,609
5. Number of cases notified by clinic .. .. .	8	7
6. Visits .. .. .	1,058	612

Mass X-ray surveys were conducted in the following local authority areas: Rylstone Shire, Cudgegong Shire, Mudgee, Blaxland Shire, Lithgow, Oberon Shire, Turon Shire, Bathurst, Abercrombie Shire, and Lyndhurst Shire.

MEDICAL EXAMINATIONS

A total of fifty-two medical examinations were carried out as compared with sixty-one the previous year. Examinations were mainly in relation to permanent appointment, ex-servicemen, and fitness for duty.

OCCUPATIONAL HEALTH

Pulmonary function tests were performed in mills at Lithgow as part of a survey on dust exposure in the cotton spinning industry.

Surveys were carried out by the Air Pollution Control Branch for the control of smoke emission from brickworks at Bathurst, Lithgow, and Dubbo.

MATERNAL AND CHILD HEALTH

1. Maternal and Infant Care

Work performed by Baby Health Centre sisters is shown in the following table:

TABLE V—ATTENDANCES AT BABY HEALTH CENTRES AND VISITS TO HOSPITALS AND HOMES, 1969–70

	1969	1970
Number of attendances at Centres .. .. .	62,209	64,142
Individual attendances at Centres .. .. .	9,120	9,355
Hospital visits .. .. .	3,678	4,091
Home visiting (hours) .. .. .	1,377½	1,772

There are now forty-seven Baby Health Centres in the Western Health District.

Four centres at Koorawatha, Greenthorpe, Woodstock, and Geurie were discontinued during the year.

Investigations were made for a service to be established at Manildra in the near future due to increased development in the area.

The use of Baby Health Centres when not in use for maternal and infant care increased considerably during the year. Approval was given for the following community services to operate in centres:

- Father and Son Movement—Mudgee Centre.
- Supporting Mothers Club—Katoomba Centre.
- Mosman Spastic Orthopaedic Team—Katoomba Centre.
- Pre-school Kindergarten—Kandos.

The Springwood and Katoomba centres were used for speech therapy clinics established by the Western Health District office and the centre at Forbes was used by Bloomfield Psychiatric Hospital to conduct community clinics.

The Community Health nurse in Walgett attended the departmental In-service training course. A Baby Health Centre sister from the North Western Health District relieved the position for 3 months. One other nomination for the course had to be withdrawn because relief could not be arranged.

The assistant nurse inspector carried out sixty-one (61) inspections of Baby Health Centres and two proposed centre sites were inspected and approved.

The number of departmental cars in use by Baby Health Centre sisters rose to six. They are now in use at Orange, Cowra, Coonamble, Narromine, Mudgee, and Walgett.

CHILD HEALTH

An attempt was made to improve the service provided by the school medical team. This was achieved to some extent by the school medical nurse working independently. Positions for one additional medical officer and two nurses were created and it is anticipated that an improvement will now take place in the services for the child with special problems.

TABLE VI—SUMMARY OF WORK PERFORMED BY SCHOOL MEDICAL OFFICER AND NURSE, 1969–70

	1969	1970
Primary School—		
Full examinations by Medical Officer .. .. .	2,822	1,646
Review examinations by Medical Officer and nurse (all grades) .. .. .	98	1,602
Review examinations conducted by nurse (4th grade only) .. .. .	225	2,035
Secondary School—		
Full examinations (2nd form, where applicable) .. .. .	262	2,989
Review examinations—not referred to Medical Officer .. .. .	16	..
Referred to Medical Officer .. .. .	62	57
Number of parent interviews .. .. .		

TABLE VII—SUMMARY OF WORK PERFORMED UNDER SHIRES SCHEME, 1969–70

	1969	1970
Primary School—		
Full examinations by Medical Officer .. .. .	5,472	3,432
Reviews by Medical Officer and Nurse (all grades, including 4th grade) .. ..	3,704	2,808
Review examinations conducted by nurse (4th grade only) .. .. .	788	867
Secondary School—		
Full examinations (2nd form, where applicable) .. .. .	136	21
Review examinations—not referred to Medical Officer .. .. .	2,494	1,701
Referred to Medical Officer .. .. .	211	167

SPECIAL SERVICES

Diagnostic teams from the metropolitan area visited Dubbo, Bathurst, and Parkes. A total of 119 children were seen. The speech therapists in Dubbo and Bathurst worked with the teams.

PRIVATE HOSPITALS AND REST HOMES

A considerable increase in activity in this field took place.

One new rest home of 148 beds was opened. Approval was sought for alterations and additions to 3 existing establishments and it was given for the construction of 2 new buildings.

Enquiries were made concerning 1 new private hospital and 2 new rest homes.

There are now 5 private hospitals and 23 rest homes providing 915 beds and 118 cots.

The following tables show an increase of 158 beds which took place during the year.

TABLE VIII—PRIVATE HOSPITALS WITH NUMBERS OF BEDS AND COTS PROVIDED, 1969–70

	1969	1970
Number of hospitals .. .. .	6	5
Beds .. .. .	67	66
Cots .. .. .	54	52

TABLE IX—REST HOMES WITH NUMBERS OF BEDS AND COTS PROVIDED, 1969–70

	1969	1970
Number of rest homes .. .. .	22	23
Beds .. .. .	690	849
Number of cots .. .. .	64	66

A total of thirty interviews were held with licensees and proposed licensees and eighty-three inspections of premises were carried out. Main problems continued to be lack of trained staff and general maintenance.

GERIATRICS

The Medical Officer of Health continued to initiate moves for the establishment of a local old persons welfare committee and the creation of a senior citizens centre.

HEALTH EDUCATION AND CONFERENCES

Talks and lectures were given to various groups throughout the district. Subjects varied from care of the aged, community aid services, departmental services, infectious diseases, and food hygiene.

The Western Health District’s annual health surveyors conference took place in Cowra. Speakers covered pollution, meat inspection, services of Government Analyst Branch, work of the Poisons Branch of the Department.

The annual community health nurses conference was again held in Bathurst. It was very well supported by representatives from many hospitals throughout the district.

VISITORS

There were no visitors from central administration during the year apart from the Director of the Division of Tuberculosis.

The Senior Executive Officer for the North-Western Hospital Region visited following the setting up of his office at Dubbo.

## NORTH COAST HEALTH DISTRICT

*Medical Officer of Health:* J. R. WHITFIELD, M.B., B.S., D.P.H.

*Location:* 11 Molesworth Street, Lismore

### STAFF

Deputy Medical Officer of Health;  
2 Medical Officers;  
2 Child Health Nurses;  
2 Tuberculosis Nurses;  
1 Senior Health Inspector;  
2 Health Inspectors;  
1 Senior Food Inspector;  
1 Food Inspector;  
1 Assistant Nurse Inspector;  
8 Baby Health Centre Sisters;  
2 Speech Therapists;  
1 Clerk;  
1 Shorthandwriter/Typist;  
1 Office Assistant.

### DISTRICT

The North Coast Health District comprises the following local authority areas:

*Municipalities:* Ballina, Casino, City of Grafton, City of Lismore, Mullumbimby.

*Shires:* Bellingen, Byron, Coffs Harbour, Copmanhurst, Gundurimba, Kyogle, Maclean, Nambucca, Nymboida, Terania, Tintenbar, Tomki, Tweed, Ulmarra, Woodburn.

### VITAL STATISTICS

*Population.*—The population of the district at 30th June, 1970 was estimated at 156,730.

*Live births.*—There were 2,788 live births in the district, equivalent to a rate of 17.79 per 1,000 of population.

*Deaths.*—Deaths numbered 1,585 equivalent to a rate of 10.11 per 1,000 of population.

*Infantile Mortality.*—Deaths under one year of age numbered 60 equivalent to a rate of 21.52 per 1,000 live births.

Of the total number of deaths of infants under 1 year of age 45 occurred within one week of birth, and 47 within the 1st month. The corresponding rates per 1,000 live births for the two age groups were 16.14 and 16.86 respectively.

*Stillbirths.*—There were 38 stillbirths in the district equal to a rate of 13.45 per 1,000 of all births (live and still).

### GENERAL

In December the North Coast Health District office transferred to new premises at 11 Molesworth Street, Lismore. These new offices have enabled all staff to be accommodated in the one building and have provided much needed additional office space. In June the Child Health staff stationed at Grafton moved into the new government office block building.

During the year there was a considerable turnover of staff and delays in the appointment of replacements and additional staff, which as a result interfered with programmes in some fields.

### STAFF TRAINING AND CONFERENCES

In-service training during the year included 6 weekly visits by the speech therapists to head office; a months in-service training for the senior food inspector; school medical officers attended a weeks in-service training course conducted by the Section of Child Health and the Medical Officer of Health attended the Combined Residential Conference for senior executive officers.

Conferences held during the year included the annual country conference of the Medical Officers of Health; the annual conference of health surveyors and officers of the North Coast Health District and a Child Health conference.

## MEDICAL EXAMINATIONS

Medical examinations for permanent or temporary employment; to determine fitness to contribute to the State Superannuation fund, and to assess medical fitness to continue in employment were carried out during the year. Also, ex-servicemen were examined to determine whether their war-caused disabilities warranted the granting of travel concessions. The number of examinations conducted was eighty-eight.

## ENVIRONMENTAL HYGIENE

Special surveys of country slaughter houses; hide and skin stores; the use of portable chemical closets in caravans and houseboats and the standard of effluent from sewage detention ponds were carried out during the year. The survey of the country slaughter houses revealed many unsatisfactory features particularly in regards to waste disposal.

As a result of a further sanitary survey of the Byron Shire an additional health inspector has now been appointed by that council. Also during the year four other local authorities appointed additional health inspectors.

Inspections of school sanitary facilities were made and recommendations as to remedial measures forwarded to the Education Department. Unsatisfactory conditions found at schools were mainly related to overcrowding, inadequate toilet and ablution facilities, lack of maintenance to water bubblers, defective stormwater drainage and in the smaller schools cesspits overflowing during wet weather.

Two local authorities resolved to fluoridate their water supplies and conferences were held and advice given by departmental officers to the local authorities concerned.

There are still many unsatisfactory water supplies in the district and a continual sampling programme has been necessary in order to draw this to the attention of the local authorities concerned. In the district five local government areas have filtered water supplies, seven areas are chlorinated, but not filtered, and 7 areas have water supplies that receive no treatment. In addition, there are towns or villages with water supplies of which eleven were filtered, nineteen chlorinated but not filtered and nineteen receiving no treatment.

Aboriginal stations continued to be inspected during the year and in general, conditions found at the stations and reserves leave much to be desired. Cottages were sub-standard, over-crowded, drainage was defective, sullage nuisances had occurred and the areas surrounding the cottages were often littered with accumulations of rubbish. In some areas, cottages were not provided with kitchen sinks, ablution or laundry facilities, and unhygienic toilet facilities were in evidence.

Pollution of rivers by trade wastes, and sewage effluent continued to be a problem, and many matters in relation to this were investigated during the year. These included discharge of trade wastes from abattoirs and dairy factories; effluent from sewage treatment works; sullage from a caravan park; and effluent from a hotel and motel.

Air pollution problems from sugar mills, hot-mix plants, milk factories, sawmill teepee burners and abattoirs were investigated during the year.

Several ministerial complaints were investigated, but a large proportion of these were in relation to the proposed establishment of garbage depots in various areas.

## OCCUPATIONAL HEALTH

Various occupational health problems were investigated in conjunction with officers of the Division of Occupational Health and more attention is being paid to this aspect of the work, particularly in relation to follow-up inspections.

Dust exposure at an asbestos mine was investigated and chest X-ray examinations of the aboriginal workers were carried out. Other dust problems investigated included cement dust; cork-wood dust; and grain dust at several large seed stores.

Other occupational health problems encountered were nitroglycerin headaches in a quarry magazine, chrome and cadmium plating works silicosis hazard, dust manganese exposure at a local brickworks and further attention was given to vibration disease among chainsaw operators.

A case of lead poisoning was investigated and also a battery manufacturing factory was inspected and advice given regarding ventilation.

TABLE 1—INSPECTION WORK CARRIED OUT IN 1970 WITH COMPARATIVE FIGURES FOR 1969

Work carried out	1969	1970
Septic tanks (proposed and existing) .. .. .	1,133	1,020
Noxious trades .. .. .	158	162
Sanitary depots .. .. .	365	340
Business premises .. .. .	43	47
Water supplies and samples .. .. .	189	257
Sewage treatment works (proposed and existing) .. .. .	68	67
Camping reserves .. .. .	30	54
Aboriginal reserves .. .. .	2	5
Scavenging districts .. .. .	1	1
Complaints .. .. .	70	112
Other inspections .. .. .	410	358
Liaison with architects, engineers and joint inspections .. .. .	106	110

PURE FOOD ADMINISTRATION

TABLE 2—INSPECTIONS AND WORK CARRIED OUT IN 1970

Work carried out	1969	1970
Premises inspected .. .. .	607	758
Warning notices issued .. .. .	55	39
Samples for analysis .. .. .	318	228
Prosecutions .. .. .	36	25
Fines and costs .. .. .	..	\$921
Food placed under seizure .. .. .	2,540 lbs \$450·17	4,680 lbs \$5,153·73

During the past 12 months considerable attention has been given to health education and food hygiene. Lectures have been given to trade and business groups, show societies, service organizations and religious groups on matters relevant to their interests.

Various prosecutions were taken for breaches of the regulations in regard to delivery of bread, waste beer, sale of adulterated food, and one prosecution was taken for unclean premises. Following prosecutions, arrangements have been made for premises to be kept under surveillance by officers of the various local authorities.

A survey of oyster-farms' bottling and sales establishments connected with that industry was carried out during the year. To date, results indicate that many of these traders are operating under unsatisfactory conditions which indicate the need for some uniform control of premises in which oysters are bottled for sale.

Liaison with local government departments and trade organizations is continuing satisfactorily, however it is felt that the prime problem concerning food inspection work is the lack of a general inspectoral programme that could and should be carried out by officers of the various local authorities. Issue of warning notices is left primarily to local government health officers inclusive of the follow-up work associated with same. However, this Department continues to serve notices where it is considered no action may be taken, in order that such warnings could be used as further evidence if needed.

COMMUNICABLE DISEASES

TABLE 3—NOTIFIED COMMUNICABLE DISEASES AND DEATHS 1969-1970

	1969		1970	
	Cases	Deaths	Cases	Deaths
Brucellosis .. .. .	3	..	3	..
Encephalitis Viral .. .. .	8	2	1	1
Infantile Diarrhoea .. .. .	26	3	28	2
Infectious Hepatitis .. .. .	104	1	93	..
Leptospirosis .. .. .	6	..	4	..
Malaria .. .. .	2	..	1	..
Ornithosis .. .. .	1	..	1	..
"Q" Fever .. .. .	5	..	3	..
Tetanus .. .. .	..	..	3	3
Tuberculosis .. .. .	15	..	38	..
Syphilis .. .. .	5	..	..	..
Gonorrhoea .. .. .	32	..	25	..
Typhus .. .. .	..	..	2	..

This year, as in other years, fewer than half the number of doctors practising in the district have notified cases of communicable disease. It is significant that this number is made up, by and large, by the same doctors each year. However, it is true that cases of the more serious diseases are well-reported.

Also, over the past years there has been a disproportionately high number of cases of infantile diarrhoea notified. And again it is significant that the vast majority of cases notified are reported by the same individual doctor. This year for example she notified 23 out of the total 28 cases.

Of the two cases of typhus notified, one was a male, who suffered from murine typhus thought to have been contracted at his place of work, while the other was a case of scrub typhus.

Since 1965, when new procedures laid down in the Venereal Diseases (Amended) Act, 1963, resulted in an immediate vastly improved notification of cases, there has been a steady decline in the number of cases of venereal diseases notified. It would appear that the incidence of venereal diseases is waning.

The Anti-Tuberculosis Association of New South Wales carried out a country survey of the district during 1970, when out of a total of 79,258 persons X-rayed, 21 new cases of active pulmonary tuberculosis were found. Altogether, 38 cases of pulmonary tuberculosis were notified during the year.

### IMMUNIZATION

Early in the year three refrigerators for the storage of Sabin polio virus vaccine were supplied for installation in the Baby Health Centres at Nambucca Heads, Grafton and Casino. The Baby Health Centre sisters were thus able to give polio virus vaccine to children attending the centres and the centres themselves became distribution points for nearby smaller centres.

Throughout the year polio virus vaccine was distributed as previously to local authorities from stock kept in refrigeration at the health office at Lismore.

At the end of the year arrangements were made for the supply of Sabin polio virus vaccine to private medical practitioners for the routine immunization of their patients against poliomyelitis. Supplies were made available to them through local authorities or, where appropriate, the Baby Health Centres. Further, returns for patients vaccinated were no longer required by the Department of Health.

The scheme for the vaccination of ambulance officers against smallpox continued during the year.

The scheme for the immunization against tetanus of staff of the Department of Agriculture, who are at special risk, also was carried out during the year.

The high degree of immunity against diphtheria, whooping-cough, tetanus and poliomyelitis, reported last year amongst aborigines at stations and reserves, was maintained by further visits this year.

### MATERNAL AND CHILD HEALTH

Again this year fewer schools were visited and fewer children examined because of staff shortages. No medical officer performed duties under the Shire Scheme throughout the year but in November a third school medical officer was appointed. Following recognition of the importance of home visiting by the Child Health nurse and the allocation of more time for this function, the number of visits this year was over double that for the preceding year. In October the Child Health nurse was promoted to the position of assistant nurse inspector.

During the annual visit of the diagnostic teams from the Ryde and Chatswood Child Health Centre, fifty-nine children were seen, including seven, brought forward for review. A further six cases were discussed in conference but neither parents nor children were interviewed.

The psychiatrist, who worked on a sessional basis, left the district during the year and there has been no replacement. Nevertheless, the number of children with special problems interviewed continues to rise each year and the services of the two full-time speech therapists have been fully utilized.

The increased attendances at Baby Health Centres and the greater number of home visits noticed last year were maintained in 1970.

TABLE 4—SCHOOL MEDICAL EXAMINATIONS

	1969	1970
Schools—		
Schools examined .. .. .	149	136
Full examinations .. .. .	2,959	3,167
Review examinations .. .. .	10,353	11,375
Defects notified .. .. .	856	1,227
Atypical Clinics—		
Children examined .. .. .	174	200
Referrals to Diagnostic Team .. .. .	65	64
Tweed Shire Scheme—		
Schools examined .. .. .	25	..
Full examinations .. .. .	429	..
Review examinations .. .. .	1,611	..

TABLE 5—BABY HEALTH CENTRE STATISTICS, 1970

Number of Baby Health Centres .. .. .	29
Total attendances .. .. .	36,539*
Under 1 year .. .. .	31,426
Over 1 year and under 2 years .. .. .	3,200
Over 2 years .. .. .	1,314
Total babies attending for first time .. .. .	2,545*
Under 1 year .. .. .	2,380
Aborigines .. .. .	72
Migrants .. .. .	13
Home visiting:	
Time spent (hours)—total .. .. .	1,482
Number of first visits .. .. .	499
Number of subsequent visits .. .. .	1,446
Number of mothers seen in hospital .. .. .	3,406
Number of individual attendances at Centres .. .. .	4,976

\* Includes miscellaneous attendances.

TABLE 6—SPEECH THERAPY STATISTICS, 1970

Number of Case Histories .. .. .	137
Number of Reviews .. .. .	111
Number attending current December, 1970 .. .. .	65
Number attending follow-up December, 1970 .. .. .	129
Number of individual attendances .. .. .	2,229
Number of school visits .. .. .	37
Number of Cases Referred .. .. .	165

### PRIVATE HOSPITALS AND REST HOMES

A quite considerable amount of work involving consultations, inspections and liaison with other authorities concerning proposed and existing private hospitals and rest homes was carried out during the year.

The Board of Health approved plans and specifications in respect of three new ventures and issued amendments to existing licences in three instances, two of which related to one rest home.

A great deal of time and effort were expended inducing one proprietor to make his premises conform with the requirements of the Board of Fire Commissioners. These efforts have not been entirely successful and are continuing.

### HEALTH EDUCATION

Information dealing with the activities of the Health Department was included in a publication in a *Coffs Harbour Advocate* supplement which coincided with the visit of the Royal Family during the year.

Exhibits were presented by the Department at both the Lismore Jaycee Trades and Industries Fair and the Lismore Exhibition.

While weekly radio broadcasts on Child Health continued, an acute shortage of Health Education publicity material, which pertained throughout the year, was finally remedied by the end of the year. A number of lectures were given by members of the Department to interested bodies.

Because of the historic significance of 1970 National Health Week had special significance. The slogan was, "Make Health our Heritage". The campaign covered community health generally and stressed the principles of healthy living. Locally, the Department provided health exhibits, liaised with the local authorities and conducted an essay and project competition for secondary school children.

## NORTH WESTERN HEALTH DISTRICT

*Medical Officer of Health:* Dr J. HENSON, B.A., M.B., Ch.B., D.P.H., D.T.M. and H.

*Deputy Medical Officer of Health:* Dr P. A. M. VAN DE LINDE, M.B., B.S., D.P.H., D.I.H.

### STAFF

1 School Medical Officer  
1 Medical Officer (Teachers College)  
1 Senior Health Inspector  
2 Health Inspectors  
1 Senior Food Inspector  
1 Assistant Nurse Inspector  
11 Baby Health Centre Sisters  
1 Community Health Nurse  
2 School Nurses  
2 Tuberculosis Clinic Sisters  
1 Speech Therapist  
1 Clerk  
1 Shorthand/Typiste  
1 Typiste

### THE HEALTH DISTRICT

This district lies between the North Coast and Western Health Districts and the Queensland border and includes cities of Armidale and Tamworth, the Municipalities of Glen Innes, Gunnedah, Inverell, Moree, Narrabri, Quirindi, and Tenterfield, and the Shires of Ashford, Barraba, Bingara, Boolooroo, Boomi, Cockburn, Dumaresq, Guyra, Liverpool Plains, Macintyre, Manilla, Murrurundi, Namoi, Nundle, Peel, Severn, Tamarang, Tenterfield, Uralla, Walcha, and Yallaroi. There have been no boundary changes during the year under review.

### VITAL STATISTICS

*Population.*—The estimated population of the District in June, 1970, was 164,850.

*Live births.*—There were 3,495 live births in this district, equivalent to a rate of 21·20 per 1,000 population.

*Deaths.*—Deaths numbered 1,454 equivalent to a rate of 8·82 per 1,000 population.

*Infantile Mortality.*—Deaths under 1 year of age numbered 88, equivalent to a rate of 25·18 per 1,000 live births. Of the total number of deaths in infants under 1 year of age, 57 occurred within 1 week of birth, and 65 within 1 month. The corresponding rates per 1,000 live births for the two age groups were 16·31 and 18·60 respectively.

*Stillbirths.*—There were 50 stillbirths in the district, equivalent to a rate of 14·10 per 1,000 of all births (live and still).

### LOCAL AUTHORITIES AND ENVIRONMENTAL HEALTH

A health surveyor was appointed to Liverpool Plains Shire. Twenty local authorities now employ their own full-time inspectors while in nine the appointment is on a shared basis with another authority. Only Nundle Shire is still without a health surveyor.

TABLE I—ENVIRONMENTAL HYGIENE INSPECTIONS

	1969	1970
Aboriginal Villages .. .. .	9	16
Public Amenities .. .. .	53	77
Dwellings and Shops .. .. .	232	168
Public Institutions .. .. .	45	26
Licensed Premises .. .. .	64	37
Meat Supplies .. .. .	33	44
Noxious Trades .. .. .	115	99
Complaints Investigated .. .. .	40	40
River Pollution .. .. .	8	16
Refuse Disposal .. .. .	302	330
Sanitary Surveys (towns and villages) .. .. .	10	4
Septic Tanks .. .. .	474	395
Sewage Treatment Works .. .. .	36	46
Water Supplies .. .. .	97	110
Other Inspections .. .. .	53	61
Samples for Investigation .. .. .	203	220

The inspection of Aboriginal villages and reserves at Armidale, Uralla, Walcha, Boggabilla, Mungindi, Moree and Caroonna has been continued regularly. Since the change in administration of Aboriginal affairs visits are made where possible in company of the resident district officers of the Department of Child Welfare and Social Welfare, to whom reports are sent on health matters. The new system has made possible better liaison in medico-social matters but has not so far resulted in any dramatic improvement in the maintenance of dwellings. Some of these leave much to be desired, especially in Boggabilla (Toomelah) where little improvement can be hoped for until radical alterations are carried out. Overcrowding continues to be a bar to better hygiene but this is partly cultural in origin. Water supplies generally are satisfactory though not always adequate.

Government institutions including schools and prisons are regularly inspected. Defects notified usually receive prompt attention.

Substandard buildings and shacks continue to pose problems even in larger centres but they are gradually being reduced by action on the part of local authorities.

Accommodation for itinerant workers has shown some improvement in the Wee Waa area following construction of quarters or provision of caravans by labour contractors. Considerable problems still arise from the presence of large families who accompany the workers. Not only do they pose medico-social problems but it is difficult to persuade employers or contractors to provide for them in the same way as for workers.

Sanitary standards in most licensed premises are now satisfactory, the exceptions being found in smaller towns and villages.

The number of private slaughterhouses has been reduced from twelve last year to six. Although it is difficult to ensure that hygiene standards are maintained it is known that in three of the six, regular meat inspection is carried out. Private slaughterhouses now account for only a very small proportion of meat supplies. The remainder come from regional abattoirs where hygienic standards are high and the meat is inspected by qualified meat inspectors.

Nearly all milk supplies are pasteurized and the few remaining dairy farms where this practice is not carried out will soon be abolished.

Unsatisfactorily noxious trades premises are rigidly followed up; but are now steadily declining in number. The main defects are inadequate feeding areas and poor cooking facilities for putrescible foods.

Complaints of nuisances received from members of the public deal mainly with: keeping of animals in residential areas; saleyards; defective septic tanks and blocked drainage systems; flies and mosquitoes; and smoke from brickworks or other industries.

Industrial waste disposal is a problem which is growing, in this district as elsewhere, in parallel with industrial development. In some cases the effluent contains toxic matter while in others the problem is one of high biological oxygen demand. It is essential that adequate steps to prevent nuisances be taken at the time industrial development is planned. It is satisfactory to note that all regional abattoir now have ponding systems for the treatment of their wastes.

Sanitary facilities at many showgrounds leave much to be desired. Not being in constant use they fall into disrepair and cannot be repaired when needed. Facilities at most caravan parks, on the other hand, are generally good. The maintenance of hygienic quality of water in swimming pools has not always been as good as might be desired. It is hoped that training courses may be organized to give pool operators a fuller understanding of the technical problems involved.

The quality and adequacy of public water supplies depends largely on topographical factors. Sixteen towns are served by dams and weirs and twenty-one from bores. Test results show that 30 per cent of supplies are not satisfactory in one or other respect—hardness, bacterial count, algal content, etc., but only seven are chlorinated. Better supervision and “housekeeping” measures are necessary at dams. Proposals have been made to use water supply dams for recreation but these have been firmly discouraged.

Disposal of garbage is generally satisfactory and tips are fairly well maintained. Twice-weekly garbage collections now operate in certain areas. Three incinerators are in use in the district. In remote areas difficulty is experienced in controlling sanitary contractors and ensuring that nightsoil is covered as soon as dumped.

Three of the eighteen sewerage works in the district are now unsatisfactory, having become overloaded as towns have grown. Additional ponds are being provided to improve final effluents. Passveer oxidation channels will be installed at Ashford and Mungindi for the first time in this health district.

PURE FOOD ADMINISTRATION

TABLE II—FOOD INSPECTIONS

	1969	1970
Premises—		
Inspection of premises (food and drugs) .. ..	863	804
Notices issued .. ..	21	17
Prosecutions for unclean premises .. ..	2	1
Fines and costs .. ..	\$154	\$502
Food and drugs (other than milk)—		
Samples taken for analysis .. ..	277	386
Samples below standard .. ..	43	66
Warnings .. ..	19	41
Prosecutions .. ..	16	28
Fines and costs .. ..	\$317	\$733
Milk samples—		
Samples taken for analysis .. ..	136	232
Samples below standard .. ..	3	26
Warnings issued .. ..	1	10
Prosecutions .. ..	1	5
Fines and costs .. ..	\$22	\$76
General breaches of the Act and regulations—		
Prosecutions .. ..	1	4
Fines and costs .. ..	\$42	\$213
Other matters—		
Complaints investigated .. ..	17	19
Food and drugs unfit for human consumption seized and destroyed .. ..	7,138 lbs	718 lbs
Spirits tested .. ..	816	470
Meats tested .. ..	187	211
Interviews with traders and members of the public ..	202	138
Visits to Local Authorities .. ..	94	93

Routine inspections and sampling take up the greater part of the Senior Food Inspector's time. Fifteen per cent of samples taken were followed by legal action or warnings.

The improvement in milk standards observed in 1969 was not maintained. 11·2 per cent of samples taken in 1970 were deficient in one way or another. From one area 65 per cent of samples taken in the latter part of the year were below standard.

The percentage of defective samples of other foods was greater, 17·1 per cent being below standard. This must be attributed in part to the lack of food sampling by officers of local government authorities, at present confined to one council only.

Soil sampling for *Clostridium botulinum* was organized as part of a State-wide survey.

PERSONAL HEALTH SERVICES

TABLE III—COMMUNICABLE DISEASES

Diseases Notified	1969		1970	
	Cases	Deaths	Cases	Deaths
Brucellosis .. ..	3	..	2	..
Encephalitis—viral .. ..	3	1	5	1
Hydatid disease .. ..	2	..	3	..
Infectious hepatitis .. ..	121	..	146	..
Infantile diarrhoea .. ..	23	4	24	6
Leptospirosis .. ..	2	..	3	..
Malaria .. ..	5	..	3	..
“Q” fever .. ..	3	..	5	..
*Tuberculosis, including .. ..	16	..	25*	..
Reactivation .. ..	1	..	..	..
Atypical .. ..	2	..	..	..
Extra-pulmonary .. ..	3	..	..	..
Veneral diseases: Gonorrhoea .. ..	65	..	39	..
Syphilis .. ..	5	..	2	..

As in previous years the most frequently notified disease was infectious hepatitis. The number notified was 146, slightly higher than in 1969, giving an overall incidence of 0·9 cases per 1,000 population. Cases were widely scattered; minor outbreaks occurred in Boomi, Boolooroo, and Yallaroi Shires (26 cases together) and in Dumaresq Shire and in Gunnedah. The greatest incidence is between 5 and 34 years of age.

The fall in notifications of gonorrhoea must give rise to concern unless it can be established that this is due to a true fall in incidence (which appears improbable) and not to other causes.

IMMUNIZATION

Sabin (poliomyelitis) immunization is offered to new-born babies by councils. In April weekly clinics were started at Armidale, Narrabri, and Inverell Baby Health Centres and this service has proved increasingly popular. Altogether 10,561 doses were given. In December the vaccine was also made available to general practitioners. In towns where these two alternatives are available it is not always worthwhile for councils to hold regular clinics.

The value of regular periodic clinics for administration of triple antigen was again demonstrated.

Departmental officers gave 229 doses of tetanus immunization to 206 staff of the Department of Agriculture at 18 centres. The issue of rubella vaccine to hospitals was undertaken. B.C.G. vaccine was issued for inoculation of hospital nursing staff and of Aboriginal babies.

TUBERCULOSIS

The central clinic is at Tamworth Base Hospital where weekly sessions are conducted by the chest physician in charge; 6-weekly visits are paid by the consultant physician. Patients requiring admission are treated in the adjoining Chest Block of the Base Hospital. There are nine subsidiary clinics conducted by local practitioners on a monthly basis.

The two chest clinic sisters attended refresher courses during the year.

TABLE IV

	1969	1970
Attendances at Clinics—		
Proven pulmonary tuberculosis .. .. .	237	190
Extra pulmonary tuberculosis .. .. .	18	21
Inactive .. .. .	478	727
(Newly notified cases) .. .. .	..	(26)*
Contacts .. .. .	1,318	836
Other attendances .. .. .	1,370	1,018
Total .. .. .	3,421	2,792
Mantoux tests .. .. .	1,387	1,042
B.C.G. vaccinations .. .. .	141	118
Admissions .. .. .	58	48
Daily average .. .. .	6.6	7.3

\* Included in above.

Notifications numbered twenty-eight against sixteen in 1969 and ten in 1968 and included one reactivation and three extra-pulmonary cases. One pulmonary and one extra-pulmonary case was due to atypical organisms. Three notified cases died, all from causes other than tuberculosis.

A mass X-ray survey was conducted in the electoral districts of Tamworth, Armidale, Barwon, and Tenterfield. Sixty-one thousand six hundred persons were X-rayed or 57 per cent of the estimated population; 14 cases were notified as a result of the survey, an incidence of 13 per 100,000 population.

A skin testing survey of pupils in secondary schools was started in the latter part of the year.

MATERNAL AND CHILD HEALTH

Maternal and Infant Care

TABLE V

	1969	1970
Number of centres .. .. .	26	28
Number of home visiting services .. .. .	3	9
Total attendances .. .. .	39,352	42,988
Number of individual attendances .. .. .	4,769	6,127
Babies attending for first time .. .. .	2,782	2,849
Hours spent home visiting .. .. .	2,089	2,467

Two new centres were opened at Premer and Spring Ridge. Home visiting services were started serving villages around Glen Innes and the towns of Bendemeer and Kootingal in Cockburn Shire, north of Tamworth. To make this possible an increase of about 25 per cent in home visiting time was allowed.

The only large areas not covered by departmental services are now found in the north and northwest shires of this district and they are served by Far West Scheme sisters.

The number of individual attendances at centres increased by 28 per cent to 6,127 and total attendances by 10 per cent to about 43,000. This has resulted in overloading of some centres, particularly Inverell.

Preparation for Motherhood classes have now become a regular feature at Tamworth where five classes were held and at Narrabri (two classes). Assistance was given with locally organized classes at Tenterfield, Walcha, and Gunnedah.

Well Baby clinics were held regularly in Tamworth and seventy-eight babies were seen.

An important development was the appointment of a Community Health nurse for Aboriginal Health at Moree in August. Her work covers both maternal and infant care and other medico-social problems and involves liaison with government departments and voluntary bodies. Weather permitting she visits Mungindi and Boggabilla on alternative weeks.

SCHOOL HEALTH

TABLE VI—EXAMINATIONS  
(Figures for 1969 in parentheses)

Type	Number of Schools		Examinations	Reviews	Parent Interviews	
Full-time Service ..	83	(82)	2,861 (3,505)	9,358 (8,513)	236	(207)
Country Councils Scheme }	43	(36)	2,394 (1,946)	2,183 (1,183)	26	(64)
Total .. .. .	126	(118)	5,255 (5,451)	11,541 (9,696)	262	(271)

Schools in six municipalities and twelve shires are visited by the full-time School Medical Officer based at Tamworth. Examination of pupils in schools in Armidale is carried out by the Teachers College medical officer in that city.

The numbers of schools and of pupils examined under the Country Councils Scheme was increased due to the inclusion, for the first time, of the whole of Boomi and Boolooroo Shires. Only Ashford and part of Yallaroi Shires remain to be covered.

Close liaison was maintained with the Education Department, both in matters of administration and in referral of problem children, and with the Commonwealth Acoustic Laboratories whose Newcastle staff now visit Tamworth once a month.

Special Services

The diagnostic team from Forest Lodge Child Health Centre visited Tamworth in July. Over eighty children were nominated from whom forty were seen. Just over half the children suffered from emotional disturbance and were equally divided between all age groups.

The speech therapist conducts regular clinics at Tamworth and also attends patients in the Base Hospital. In addition, fortnightly clinics were held at Armidale and surveys were carried out at Tamworth, Glen Innes, Tenterfield, and Inverell (two visits). Individual attendances rose from 1,368 in 1969 to 1,454 in 1970.

PRIVATE HOSPITALS AND REST HOMES

TABLE VII

	1969		1970	
	Number	Beds	Number	Beds
Private hospitals .. ..	4	65	4	81
Rest homes .. .. .	4	94	5	158

One new rest home was completed and others extended. Every opportunity is taken to raise the standard of accommodation which is now satisfactory in all but the oldest premises. Good liaison was maintained with the local officer of the Board of Fire Commissioners.

### MEDICO-SOCIAL WORK

The number of cases dealt with is increasing steadily and it has proved necessary to limit those seen mainly to the Tamworth area.

Referrals are received from and passed on to, both State and Local Government departments and voluntary agencies. Many are handled in conjunction with Baby Health Centres, school medical officer, and tuberculosis clinics of this department.

### MEDICAL EXAMINATIONS

A total of seventy examinations was performed (forty-seven males and twenty-three females) comprising fifty-one candidates for employment in the Public Service, thirteen staff already in employment, and six pensioners applying for rebate of motor tax.

### HEALTH EDUCATION AND PUBLIC RELATIONS

Cordial relations exist both with local government authorities and voluntary bodies and with news media whose ready co-operation is acknowledged.

Health education forms part of the day-to-day work of the office and falls, additionally, into three broad categories:

- (i) distribution of general Health Education material and publications of an advisory nature;
- (ii) talks and discussions of a more specific nature with interested groups of the public;
- (iii) organization of conferences and meetings with those directly concerned in various health activities with a view to planning and developing their activities.

### RIVERINA HEALTH DISTRICT

*Medical Officer of Health:* Dr DAVID J. LAW, M.B., B.S., D.P.H.

*Deputy Medical Officer of Health:* Dr T. R. MCCALL, M.B., Ch.B., D.P.H.

*Location:* New South Wales Government Offices, Cooper Street, Cootamundra

### STAFF

- 1 School Medical Officer
- 1 Medical Officer (Wagga Wagga Teachers College)
- 1 Senior Food Inspector
- 1 Senior Health Inspector
- 2 Health Inspectors
- 1 Assistant Nurse Inspector
- 19 Baby Health Centre Sisters (1 part-time)
- 3 Tuberculosis Nurses
- 1 School Nurse
- 2 Community Health Nurses (Far Western Group of Shires)
- 1 Community Nurse (Aboriginal Health Services)
- 1 Speech Therapist
- 1 Senior Clerk
- 1 Shorthand Writer/Typist
- 1 Office Assistant

There were four resignations during the year, six officers transferred to other areas, and eight replacements were obtained. One health inspector position was vacant for 8 months, and that of assistant nurse inspector was unfilled at the end of the year, having been vacant for 3 months. No suitable candidates applied for the two new positions of community health nurse (Far Western group of shires), and Wagga Wagga Teachers College remained without a medical officer.

### DISTRICT

The Riverina Health District is bounded in the south by the Victorian border and in the west by the South Australian border. The northern boundary extends from the South Australian border eastwards along the northern boundaries of the Shires of Wentworth, Balranald, Carrathool, Bland, Weddin, Burrangong and Boorowa to a point approximately 20 miles south-west of Cowra. Thence, the eastern boundary extends southwards along the eastern boundaries of the shires of Boorowa, Goodradigbee, Tumut and Tumbarumba to the Victorian border. The district has an area of approximately 49,000 square miles and contains forty-five shires and municipalities.

## VITAL STATISTICS

The estimated population of the district at June 30th, 1970 was 260,180. There were 5,267 live births, equal to a rate of 20.24 per 1,000 of population.

Deaths under 1 year of age numbered 107, equal to a rate of 20.32 per 1,000 live births. Of these 90 occurred within the 1st month. The corresponding rates per 1,000 live births for the two age groups were 20.32 and 17.09 respectively.

There were 71 stillbirths, equal to 13.30 per 1,000 of all births, live and still.

## NOTIFIABLE COMMUNICABLE DISEASES

TABLE I—NOTIFICATIONS OF CASES AND DEATHS, 1969-70

Disease	1969		1970	
	Cases	Deaths	Cases	Deaths
Brucellosis .. .. .	2	..	2	..
Diphtheria .. .. .	1	..	..	..
Encephalitis, Viral .. .. .	2	1	1	..
Gonorrhoea .. .. .	36	..	26	..
Hydatid Disease .. .. .	7	1	2	1
Infantile Diarrhoea .. .. .	28	4	28	..
Infectious Hepatitis .. .. .	136	2	225	1
Leptospirosis .. .. .	..	..	1	..
Malaria .. .. .	2	..	2	..
Syphilis .. .. .	3	..	1	..
Tetanus .. .. .	1	1	..	..
Tuberculosis .. .. .	30	..	19	4

The distribution of notified cases of infectious hepatitis in areas having a high incidence (table II) illustrates the endemicity of this disease. Local epidemics appeared to be associated in some areas with an influx of migrant workers and their families. In the Griffith and Leeton areas, outbreaks continued from the previous year into the first 3 months of this year. The peak incidence occurred in early spring.

TABLE II—DISTRIBUTION OF NOTIFIED CASES OF INFECTIOUS HEPATITIS, 1970. (JANUARY TO DECEMBER)

Area	J.	F.	M.	A.	M.	J.	J.	A.	S.	O.	N.	D.	Total
Corowa .. .. .	3	3	..	1	..	1	..	..	..	..	..	..	8
Dareton- Wentworth .. .. .	..	..	..	..	..	5	3	1	5	7	3	3	27
Griffith .. .. .	8	9	6	1	1	4	2	..	..	..	..	..	31
Leeton .. .. .	4	5	2	2	..	..	4	6	11	7	1	..	40
Wagga Wagga .. .. .	3	..	1	..	1	1	4	..	11	7	2	2	32
West Wyalong .. .. .	1	..	..	1	..	..	2	1	2	..	1	3	13
Yass .. .. .	1	1	..	..	..	1	2	5	2	1	1	..	14
	20	18	9	5	2	12	17	13	31	22	8	8	165

The decrease in notifications of tuberculosis can be attributed to the fact that no Mass Miniature X-ray surveys were carried out in the district during the year.

The B.C.G. vaccination of regular army and National Service recruits comprising the periodic intakes into the Kapooka Military Area was undertaken by district staff.

Some 135 officers of the Department of Agriculture were immunized against tetanus in a campaign carried out in accordance with an agreement between the Departments of Agriculture and Health. Vaccination against anthrax of selected Agriculture Department field officers was also undertaken.

## ENVIRONMENTAL HYGIENE

Observation of the steadily increasing number of permanent and casual residents in houseboats and cabin cruisers on Lakes Hume and Mulwala, part of the Murray River system, prompted an investigation of the waste disposal methods used by the occupants. The information obtained demonstrated the need for a detailed survey of all aspects of waste disposal into this major waterway.

The practice of carrying out sanitary surveys of local government areas was continued. In the selection of the areas to be surveyed, special consideration was given to remoteness and inadequacy of local health services.

TABLE III—ROUTINE INSPECTIONS AND INVESTIGATIONS, 1969-70

	1969	1970
Abattoir and slaughteryards .. .. .	76	56
Aboriginal stations and reserves .. .. .	2	6
Camping grounds and caravan parks .. .. .	51	43
Dwellings and shops .. .. .	82	355
Hotels .. .. .	28	129
Nuisances and complaints .. .. .	28	62
Noxious trades .. .. .	200	163
Samples submitted for analysis .. .. .	152	374
Sanitary surveys .. .. .	10	7
Sanitary depots, existing and proposed .. .. .	115	223
Septic tanks—applications dealt with .. .. .	276	1,076
—mass installations .. .. .	2	1
Sewage treatments works, including proposed sites .. .. .	101	86
Others, including swimming pools, water supplies .. .. .	97	101
Special investigations .. .. .	7	5

There was a marked increase in the number of requests by local government authorities for the assistance of district inspectors in the control of the hygiene of dwellings, shops and hotels.

A closer liaison with district officers of the Department of Child Welfare and Social Welfare led to substantial improvements in the environmental sanitation in two Aboriginal reserves. Arrangements were made with the local authority to provide a regular garbage removal service to one reserve, and a sanitary depot for the disposal of garbage was established in another reserve. Despite these improvements, the continuing unsatisfactory sanitary state of reserves indicates the need for persistent vigilance by, and co-operation between, these two Departments and the local government authorities concerned.

There was an increase in the use of methyl bromide for the fumigation of stored grains and fruits. Applicants for a licence to fumigate by means of dangerous substances were examined by the Senior Health Inspector and the Deputy Medical Officer of Health. The performance at examination of the majority of the candidates was of a high standard and the general improvement in theoretical knowledge, compared with that in the previous year, may in part have been due to the activities of district staff in assisting officers of the Division of Occupational Health and Pollution Control in correcting unsafe fumigation practices in the district.

### PURE FOOD ADMINISTRATION

The introduction during the year of substantial increases in the penalties for certain offences under the Pure Food Act and regulations resulted in a greater proportion of matters being defended and this led to an increase in the number of court attendances by the Senior Food Inspector. Consequently, the time available for systematic inspections and sampling was reduced, and many of the planned activities, especially in the more remote areas, had to be postponed.

Because of the difficulties experienced by the health surveyors employed by certain local authorities in taking legal proceedings against other members of their own communities, they looked increasingly to departmental officers to secure the evidence necessary for successful prosecutions for serving drink in unclean glasses. Planning of the field activities of the Senior Food Inspector and of officers of the health inspectorate, to allow for combined inspections of suspect premises was required.

A further improvement in co-operation with other government departments was a noteworthy feature of this year's activities. In particular, good liaison with the Divisional Senior Supervisor of the Dairy Industry Authority of New South Wales resulted in the exchange of much valuable information.

TABLE IV—INSPECTIONS, SAMPLES, NOTICES AND PROSECUTIONS, 1969-70

	1969	1970
Premises inspected .. .. .	866	844
Notices served .. .. .	157	69
Samples—purchased .. .. .	382	302
—below standard .. .. .	43	36
Spirits tested .. .. .	575	239
Meats tested for preservative .. .. .	541	178
Complaints investigated .. .. .	36	43
Prosecutions completed .. .. .	67	44
Fines and costs imposed .. .. .	\$1,556	\$2,780

The investigations into the high level (a maximum of 296 p.p.m.) of hexachlorobenzene (HCB) in the hen eggs from a particular flock, initiated last year at the request of the Department of Agriculture and the Egg Marketing Board of N.S.W., were continued. After destruction of the treated wheat which was shown to be the source of contamination, it was conclusively established, by repeated sampling and analysis of many consecutive batches of eggs, that the concentration of this fungicide had fallen to, and remained at, a safe level.

MATERNAL AND CHILD HEALTH

Maternal and Infant Care

The opening of a new, air-conditioned, Baby Health Centre to replace unsatisfactory premises at Deniliquin took place in February.

The provision of additional departmental vehicles for circuit work brought a reduction in circuit costs as well as allowing improvements in itineraries to be made.

A survey of home visiting was introduced on the basis of monthly reporting by sisters. In addition to providing data for an evaluation of needs, met and unmet, the form used in this survey was designed to be a guide to sisters in the extension of the home visiting service, previously directed only to mothers and babies, to encompass other members of the family. The survey also showed that the enhanced mobility of sisters resulting from the increase in the number of departmental vehicles produced an improvement in the quality of home visiting.

TABLE V—ATTENDANCES AND HOME VISITING STATISTICS, 1969–70

	1969	1970
Number of Baby Health Centres .. .. .	64	64
Total Attendances .. .. .	67,208	67,103
Under 1 year .. .. .	57,337	56,061
Over 1 year and under 2 years .. .. .	6,323	6,581
Over 2 years .. .. .	3,548	3,408
Total Babies attending for first time .. .. .	5,053*	5,033*
Under 1 year .. .. .	4,422	3,439
Aborigines .. .. .	46	65
Migrants .. .. .	74	30
Home Visiting		
Total hours .. .. .	2,623	2,544
Number of first visits .. .. .	1,269	1,297
Number of subsequent visits .. .. .	3,604	3,760
Number of individual attendances at centres .. .. .	10,103	10,834

\* Includes miscellaneous attendances.

Child Health

Owing to the serious illness of the School Medical Officer and the undertaking by the school nurse of an In-service training course lasting 10 weeks there was a decrease in the number of school medical examinations carried out by the Departmental team. Plans for the extension of the service during the year were postponed and the programme was modified to allow for more examinations to be carried out by the school nurse alone and for medical examinations in certain areas to be carried out under the Country Councils Scheme.

The services of a medical practitioner from outside the district were obtained for examinations under the Country Councils Scheme in two shires in which no school medical service had operated for a number of years. This doctor also carried the service for the first time to the Shire of Berrigan.

TABLE VI—MEDICAL EXAMINATIONS OF SCHOOL CHILDREN

Scheme	Schools Visited	Children Examined		Defects Noted	Parents Interviewed
		Fully	Reviewed		
Departmental—					
1969 .. .. .	90	3,227	3,218	1,008	504
1970 .. .. .	86	1,513	4,893	506	286
Country Councils—					
1969 .. .. .	108	7,903	6,304	1,982	523
1970 .. .. .	110	6,783	5,723	1,610	473

Diagnostic services to children were provided at Albury, Wagga Wagga and Griffith. The Assistant Director, Section of Special Services, assisted by the District Speech Therapist, conducted clinics for the evaluation of children referred by school counsellors and school medical officers (Shires Scheme) in the Albury area while diagnostic teams from the Bexley and Cabramatta Child Health Centres visited Wagga Wagga and Griffith respectively. Each team spent 1 week in consultation, and sixty-seven children were examined. A higher standard of case selection was attained by improvement in communication between school counsellors, school medical officers and the district staff.

Both teams reported that cases were well-selected, and the reduction in the numbers of children examined compared with previous years, enabled a more comprehensive assessment to be made in each case.

TABLE VII—DIAGNOSTIC TEAM CLINICS, 1970

Diagnostic Category	Pre-School	Infants	Primary	High	Total
Emotional problems .. .. .	..	12	16	10	38
Educational problems .. .. .	..	6	3	..	9
Mental retardation .. .. .	..	..	1	..	1
Speech defects .. .. .	..	9	2	..	11
Physical defects .. .. .	..	..	1	..	1
Mixed problems .. .. .	1	2	3	1	7
	1	29	26	11	67

### SPEECH THERAPY

Requests for the services of the speech therapist continued to increase. Clinics were opened at Tumut and Narrandera during the year, and the service now available on one day each month in these centres complements that previously established in Wagga Wagga, Albury and Cootamundra.

Although the district was without a speech therapist for almost 3 months the total number of children seen was 552 compared with 435 in 1969 and children attending for treatment or under observation numbered 332 compared with 278 in the previous year.

There was a decrease in total attendances from 1,732 to 1,079 while the number awaiting treatment increased from 90 to 104.

### ABORIGINAL HEALTH AND WELFARE

A community nurse (Aboriginal Health Services) commenced duty at Dareton in May. This officer early established good relationships with the Aboriginal population and has received excellent co-operation from other members of the community, officers of government departments and the local authority and from local hospital, medical and voluntary welfare services.

Her activities included the instruction of mothers in house-keeping, cooking and sewing while assistance was given to families in obtaining furniture loans and, with assistance from other departments, one family was rehoused in Housing Commission premises in Wentworth. Sabin vaccination of adults and children was carried out, and arrangements were made with the Mildura Hospital immunization clinic for the immunization of children against diphtheria, tetanus and whooping cough. By the end of the year nearly all the children of permanent Aboriginal residents had completed the primary course of injections.

In addition to carrying out a vigorous Health Education campaign in schools and in homes, the community nurse arranged to have a regular garbage collection service established in the area of densest Aboriginal habitation. Accumulated bottles were collected and stray dogs were impounded.

These and the many other activities of the community nurse directed towards improving the health and welfare of the Aboriginal people in the Dareton-Wentworth area augur well for the future of this service.

### PRIVATE HOSPITALS AND REST HOMES

Plans for a forty-bed private hospital in Wagga Wagga were approved and building was started late in the year. Extensions to a rest home in Wagga were completed, raising the bed capacity from eight to twenty-four beds. Rest homes in the district number three, the total capacity being fifty-three beds. Regular inspections showed that a satisfactory standard of patient care was maintained.

### DISTRICT CONFERENCES

The fifth Annual conference of local government health surveyors and inspectors and departmental officers was held in Deniliquin. The conference theme was "Environmental Pollution" and principal speakers were Mr Dennis Robbins, Division of Analytical Laboratories and Mr G. R. Simpson, Section of Agricultural Health, Division of Occupational Health.

"Community Health Nursing" was the theme of the conference of Baby Health Centre sisters held at Cootamundra. Valuable discussions on the role of centre sisters in community mental health service followed two talks given by Dr D. R. Morgan, Medical Superintendent, Kenmore Hospital.

### HEALTH EDUCATION AND PUBLIC RELATIONS

Special emphasis was given in the Health Education programme to the detection and control of hydatid disease. Display units were set up and manned by district health inspectors at the annual Trade Fair held in Corowa, and the popularity of the display led to a request from Albury City Council for a similar demonstration to be staged at the Albury Trade Fair. Here assistance with the preparation and exhibition of a wide variety of Health Education material, including the control of hydatid disease, was given to Albury City Council staff by district officers and an officer of the Division of Health Education.

## BROKEN HILL HEALTH DISTRICT

*Medical Officer of Health:* Dr. J. T. CULLEN, M.B., B.S.

*Location:* Bureau of Medical Inspection, 84 Bromide Street, Broken Hill, N.S.W. 2880

*Senior Medical Officer:* Dr. J. P. D. O'HIGGINS

*Location:* Central Baby Health Centre, Sulphide Street, Broken Hill, N.S.W. 2880

### STAFF

1 Radiographer  
2 Clerical Staff

### LOCAL AUTHORITIES

The Broken Hill Health District is confined to the County of Yancowinna. The county covers an area of 16,000 square miles, with the city of Broken Hill at the centre of the county.

The South Australian border forms the western boundary. The Broken Hill Health District is a centre of metal mining and pastoral industries.

### VITAL STATISTICS

These statistics refer to the City of Broken Hill.

The population of the district as at 30th June, 1970 was 30,620.

There were 610 live births in the district.

Deaths of residents numbered 303.

Infantile mortality: Deaths under 1 year of age numbered 8.

Of the total number of deaths of infants under 1 year of age, 8 occurred within 1 month of birth.

There were 3 stillbirths to mothers resident in the district.

### COMMUNICABLE DISEASES

	1969	1970
Infectious Hepatitis .. .. .	..	27
Tuberculosis .. .. .	4	9
	—	—
	4	36
	—	—

### EXAMINATIONS CARRIED OUT

	1969	1970
Examinations and interviews as Medical Officer of Health .. .. .	201	180
Post mortem examinations at the request of the Coroner .. .. .	48	35
Attendances at Court and giving evidence in Police cases .. .. .	17	15
Examinations of arrested persons or prisoners .. .. .	2	10
Examinations and reports on Police Constables <i>re</i> fitness for duty .. .. .	16	16
Visits to goal for examination of prisoners .. .. .	2	4
Government examinations—Public Service Board, Railways Department, Education Department .. .. .	439	266

### HEALTH EDUCATION

Lectures have been given to nurses, school children, and interested womens groups by the Medical Officer of Health and the Senior Medical Officer.

### WATER SUPPLY

Bacteriological examination of the water supply has been carried out. Examinations are made at the laboratory and from time to time they are compared with examinations from Sydney. Tests have proved satisfactory.

### INDUSTRIAL MEDICINE

Industrial deafness examinations have continued with weekly visits by ear, nose, and throat specialist. During 1970, 867 mine employees were examined and a majority found to be suffering from sensori-neural deafness.

MATERNAL AND CHILD HEALTH

1. Maternal and Infant Care

Number of Baby Health Centres	..	..	..	..	..	..	4
Total attendances	..	..	..	..	..	..	12,460
Under 1 year	..	..	..	..	..	..	11,547
Over 1 year and under 2 years	..	..	..	..	..	..	719
Over 2 years	..	..	..	..	..	..	194
Total babies attending for first time	..	..	..	..	..	..	640*
Under 1 year	..	..	..	..	..	..	476
Aborigines	..	..	..	..	..	..	..
Migrants	..	..	..	..	..	..	3
Home visiting—							
Total time spent visiting (hours)	..	..	..	..	..	..	594
Number of first visits..	..	..	..	..	..	..	70
Number of subsequent visits	..	..	..	..	..	..	697
Number of mothers seen in hospital	..	..	..	..	..	..	622
Number of individual attendances at centres	..	..	..	..	..	..	1,263

\* Includes miscellaneous attendances.

2. Child Health

The medical examination of school children in departmental and non-departmental schools, both at primary and high school levels, continued during the year. Preschool children were examined both in the kindergarten environment and at the Central Baby Health Centre.

Liaison with the Royal Flying Doctor Service remains excellent and is much appreciated. Through its services the Departmental Medical Officer is transported to the outback schools situated at Wilcannia, Tibooburra, and White Cliffs. Through the co-operation of the new Director of the Royal Flying Doctor Service (N.S.W. Section), air transport of the Senior Medical Officer to Ivanhoe was arranged and examinations of children in this township's public school were commenced.

The public school at Menindee was visited by road.

*School of the Air.* Prior to the medical officer's visits to outback areas, a message is relayed via "School of the Air" radio network advising parents and children that medical examination of homestead pupils will be available at the school to be visited. Correct immunization procedures in regard to these children has also been stressed via the network.

	1969	1970		1969	1970
Number of Schools—					
Departmental .. .. .	15	13	Number examined ..	13	12
Non-Departmental .. .. .	7	7		6	6
Total .. .. .	22	20		19	18
School population—					
Departmental .. .. .	6780	6680			
Non-Departmental .. .. .	1023	1140			
Total .. .. .	7803	7820			
	1969	1970			
Number of Local Authority Areas in which Shire Scheme is established .. .. .	Nil	Nil			
Total number of children examined .. .. .	2224	2781			
Percentage of children examined .. .. .	28.5	35.5			

## EXAMINATIONS IN SCHOOLS

	1969	1970
(a) <i>Primary schools:</i>		
Full examinations by medical officers (1969 figure includes pre-school Kindergarten full examinations) .. .. .	1590	1579
Review examinations by medical officers and nurses (all grades including 4th grade) .. .. .	15	422
(b) <i>High schools:</i>		
Full examinations (2nd form where applicable) ..	32	49
<i>Review Examinations:</i>		
Seen by Nurse and Medical Officer .. .. .	587	731
Total .. .. .	2224	2781
Number of Defects Notified .. .. .	187	228
Total number of parent interviews conducted by Medical Officer .. .. .	206	272
<hr/>		
Pre-School Kindergartens:		
Number of Schools .. .. .		3
Full Examinations .. .. .		160
Review Examinations .. .. .		13
Total .. .. .		173
Number of Parent Interviews .. .. .		51
Number of Defects Notified .. .. .		23

*Mantoux Testing in Schools.* In October a total of 430, 3rd and 5th form high school pupils were given Mantoux tests. There were 11 positive reactions noted; all subsequent chest X-rays proved negative. However, 2 children had positive reactions in excess of 15 mm diameter and were placed on isoniazid therapy for 1 year.

*Mass Rubella Immunization Campaign.* During the first week of December a total of 487 Broken Hill schoolgirls in the appropriate age group were immunized against Rubella. The co-operation received from both departmental and private schools was excellent and parental consent to vaccinate the girls was given in a vast majority of cases. Similar campaigns will be conducted at Wilcannia, Menindee, and Ivanhoe early in 1971.

At the end of the school year Sister R. Kilsby resigned from her position as Public Health Nurse in this area. Sister P. Davis has been appointed as her successor and, following a period of In-service training in Sydney, will commence duties in the Broken Hill Health District during February, 1971.

### 3. Special Services

A diagnostic team comprising a paediatrician, psychologist, and social worker from the Child Guidance Centre, Brisbane Street, Sydney, visited Broken Hill in September. The co-operation of local medical practitioners, hospital medical officers, and the Department of Education in referring appropriate children to the team was excellent. A total of forty-five children were examined and assessed and where necessary arrangements were made for suitable remedial therapy. The results of the team's visit were much appreciated by all concerned and the parents of children involved were most grateful for this service.

*Problem Readers Clinic.* This clinic, which was formed in the latter half of 1969 and which is based at the Rehabilitation Centre at Broken Hill and District Hospital, has continued its activities during the year and, although the number of children it was possible to assess was limited, the results achieved to date have been most encouraging. There is now a departmental remedial teacher permanently stationed in Broken Hill and another qualified remedial teacher who conducts classes after normal school hours. In addition, during the weekend of September, 26th and 17th, a team from the Education Department in Sydney comprised of a district guidance officer, a psychologist, and a remedial teacher, conducted a seminar in the city on "Remedial Teaching" with the object of educating local teachers concerning reading problems in children as well as acquiring additional teachers to supplement "Remedial Teaching" facilities in the district. Following the seminar a series of In-service training courses on the subject were held locally.

Following some initial problems regarding the referral of children to the Problem Readers Clinic, a satisfactory arrangement now exists whereby the school principals refer all cases to the departmental medical officer. Should the child be the patient of a private practitioner, a letter of notification and referral letter is forwarded to the child's doctor.

Children who would ordinarily attend Broken Hill Hospital for their ailments are assessed and physically examined by the departmental medical officer prior to their attending the clinic.

#### 4. Aboriginal Health and Welfare

The effective immunization of Aboriginal children against poliomyelitis, pertussis, diphtheria, and tetanus has been greatly improved since the appointment of an Aboriginal Community Health nurse as has the accurate recording of the children's immunization status. A supply of measles vaccine has been ordered upon receipt of which all Aboriginal children between the ages of 1 and 4 years will be immunized against this illness.

Regular visits are made to the various outback schools which have Aboriginal pupils. These schools include the Aboriginal Mission School at Wilcannia conducted by the Sisters of Compassion. When defects are noted, arrangements are made for the treatment of the children's disabilities.

The matter of dehydration, particularly that subsequent to gastro-enteritis, among Aboriginal children in the Wilcannia area is a matter of concern and a committee which includes the Senior Medical Officer, is being formed with the object of reducing the incidence of this condition. In addition, proposals have been made for a sewerage system encompassing the entire Wilcannia Aboriginal Reserve, and this, it is felt, will lead to further health benefits with reduction of flies during warm weather.

Sister M. Kerle was appointed as Community Health nurse for Aborigines in the Central Darling Shire and, following a period of In-service training in Sydney she commenced work in March. The Community Health nurse's duties include supervision of the hygiene and nutrition of Aboriginal families and the detection of physical and other disabilities among the children in her area. Any children who have problems which are causing her concern are referred to the Senior Medical Officer for appropriate action. In addition, Sister Kerle was largely responsible for initiating the erection of a "Laundry-Bathing" centre on the Wilcannia Aboriginal Reserve. The centre was opened on December, 12th and contains toilets, showers, and baths for males and females as well as washing machines and irons. The facilities offered are being very well-utilized by the Aboriginal people and the centre is being most capably managed by the middle-aged Aboriginal woman-in-charge. The erection of this ablution block has resulted in an improvement in the hygiene and cleanliness standards of many Aborigines.

Sister Kerle resigned from her position on 16th October, and was replaced by Sister B. Crisp who is proving to be an equally dedicated and able worker.

Following the award of scholarships for secondary education at Broken Hill High School to two part-Aboriginal children, a girl from Tibooburra and a boy from Menindee, these two pupils commenced domicile and study in Broken Hill during 1st term. A close interest in their progress has been maintained and it is most gratifying to record that these children are progressing very favourably scholastically and socially in their new environment. Further Aboriginal children who would prove suitable candidates for similar advancement opportunities are being sought.

### ABORIGINAL COMMUNITY HEALTH SERVICES

#### Wilcannia Population

The Aboriginal population of the area comprising the Shire of Central Darling is estimated to be in the vicinity of 520 persons. This is made of Wilcannia (420), Ivanhoe (50), and Menindee (50). As far as can be ascertained, there are no Aboriginal families at White Cliffs at present.

#### Housing

Of these 520 Aborigines, more than half are inadequately housed, the usual dwelling being a galvanized iron shack, usually situated on a River Reserve, and containing the barest minimum of facilities. Water is often drawn from the Darling River, or carted in drums. Tests on this water at points downstream from Menindee have indicated water contamination in the Darling River.

#### Social Amenities

Recreational facilities in these towns are practically nonexistent, so Aborigines must make their own entertainment. This often leads to anti-social behaviour by bored, idle persons.

#### Infant Mortality

One infant death was recorded in the area during the year and this compares very favourably with figures from previous years. There were, however, quite a number of seriously ill babies who were admitted to hospital and recovered.

#### Activities

Regular home visits to families with young children were maintained, and babies were weighed regularly. Mothers are advised on child care with particular emphasis on hygiene and prevention of dehydration. Where necessary, babies are transported to the local hospital for more intensive investigation and treatment than is possible in the home. It has become necessary for routine head checks to be made with the assistance of the school staffs in an attempt to check pediculosis. Transport is arranged and carried out on persons needing specialist treatment in Broken Hill, under the direction of the Senior Medical Officer.

### The Aboriginal Family

The mother is head of the home mainly because father is rarely available. There is no lack of love between mother and the younger children but as the children grow older there is a noticeable lack of discipline. They are considered to create problems and the need for extra food. Although there is ample love for the younger children they are still not clothed, washed or fed properly. Often in these homes the father claims the endowment money and unemployment benefits for drinking and gambling before it can be spent on food and clothing for the family. As long as the family is living in some sort of dwelling, the father thinks his responsibility finishes there.

The family endeavouring to raise their standard of living is discouraged by friends and usually the move is unsuccessful and the family is welcomed back into the fold with much jubilation. Any money saved in the process is rapidly spent with willing help from friends.

There is rarely any family planning as extra children in the family increases the child endowment and unemployment benefit and eliminates the need to work. If there is any current culture amongst the Aboriginal community it is that of a loose group of family who share in common handicaps due to the poor start in life, have a common mood of hopelessness creating a feeling of apathy. This is the way it is at Wilcannia. The Aborigines remain the way they are because they see no point in changing. The only way that change can be accomplished is by education of the children.

When a child is admitted to hospital the mother is visited with a view to talking over some of the health problems in the home. The adults are slow to learn and slow to change from the old ways. The mother is prepared to raise the standard of living in her home but the father refuses to co-operate mainly because he thinks improvements cost money and if money was spent on anything other than the bare necessities he would have nothing for gambling and drinking.

### Summary

It is felt that 1970 has been a year of settling in and the establishing of a workable routine of home visiting and other facets of the Community Health nurses' role. It is confidently predicted that the improvements in health generally noticed during the past year will continue to grow during 1971. The progress made was due in no small way to the ready assistance and co-operation of the various Governmental and private bodies engaged in similar activities. Among these are the Wilcannia and District Hospital, the White Cliffs Subsidiary Hospital, the Methodist Nursing Service at Menindee. The Ivanhoe and District Hospital, the Sisters of Compassion at Wilcannia, and the various police encountered in this area. Particular emphasis must be made of the assistance given by the Welfare Officer of the Department of Child Welfare and Social Welfare at Wilcannia without whose help much useful work would not have been possible.

SCIENTIFIC SERVICES

DIVISION OF ANALYTICAL LABORATORIES

Director and Government Analyst: Mr L. G. CLARK A.S.T.C. (Chem), A.R.A.C.I.

Location: Joseph Street, Lidcombe

The establishment consisted of:

- 37 Analysts
- 5 Microbiologists
- 19 Technical Officers and Technical Assistants
- 17 Laboratory Attendants (4 being part-time) and
- 5 Clerical Staff

Various staff are also shared with the Division of Occupational Health, including a librarian, storeman, telephonist, maintenance staff and cleaners.

Details of the samples and cases examined in 1970 are tabulated below together with comparative figures for 1969. Approximately 2 months production time had been lost in 1969 due to the move to the new laboratories, with a curtailment of samples in the food and water sections. Details of the sources from which samples were received are given in appendix 1.

Section	1970	1969
General Foods .. .. .	919	715
Milk and Dairy Products .. .. .	8,515	8,575
Meat and Meat Products .. .. .	4,416	4,497
Food Bacteriology .. .. .	1,710	250
Pesticide Residues .. .. .	256	226
Water (Chemical) .. .. .	2,618	1,717
Water (Bacteriological and Algal) .. .. .	7,629	5,039
Water Fluoridation .. .. .	49 Inspections	47 Inspections
	334 Samples	325 Samples
Toxicology .. .. .	747 Cases	715 Cases
Biochemical .. .. .	1,788	1,452
Blood Alcohol .. .. .	1,790	1,611
Drug .. .. .	304 Cases	218 Cases
Criminal Investigation .. .. .	112 Cases	94 Cases
Govt Stores (excluding Food and Drugs) .. .. .	122	118

GENERAL FOODS SECTION

Nine hundred and nineteen samples were examined during the year, including the following groups:

Alcoholic beverages .. .. .	269
Soft drinks .. .. .	153
Colour in foods .. .. .	40
Breads .. .. .	21
Quality assessment of foods .. .. .	104
Gas in canned foods .. .. .	18
Alleged illness due to food .. .. .	37
Foreign matter in foods .. .. .	111

Alcoholic Beverages

The number of samples analysed (269), was a large increase over previous years.

One hundred and six beer samples were analysed but only 2 failed to comply.

Nine-two fortified wines were analysed 11 of which were below standard. Another 24 wines including unfortified table wines which at present are not covered by a standard were analysed during a survey into their alcohol content.

Thirty-eight spirit samples were analysed, 32 of which were below the prescribed standard for alcohol. Food inspectors test a considerable number of spirits in hotels by the Sykes hydrometer but only submit those samples for analysis which do not comply with this test. Six samples of spirits taken from licensed premises were analysed for the Brands Protection Association. Three of these were not true to label.

### Quality Assessments

Ninety-one of these samples consisted of frozen fish which was suspected of having thawed due to faulty storage. In 41 cases, the samples were rejected as unfit for consumption. These samples are usually referred to the Department in the first instance by insurance companies.

### Foreign Matter in Food

Rodent excreta was found in twelve samples of food and a rodent's tail found in a bag of hot potato chips. Three cases involved the contamination of food by bottles which had previously been used to store paint or solvents. This is a particularly dangerous practice, since the subsequent cleaning of the bottles may not remove all traces of these substances.

A company was prosecuted for selling a pineapple fritter in which a cockroach was imbedded in the batter. The magistrate gave the defendant a bond and castigated the Department for proceeding with what he termed "a trivial matter".

The laboratory now uses Polaroid camera attachments on various microscopes to make photographic records of foreign matter found in foods. This is of assistance to the food inspectors who may tender them as evidence.

### Illness from Food

Thirty-seven cases were investigated of food alleged to have caused illness. Most of these complaints were unfounded. However an outbreak of illness amongst schoolboys was traced to the ingestion of rissoles cooked in tung oil. This oil is highly unsaturated and is used for the manufacture of paint. It is known to cause gastric disturbances and is not suitable for cooking purposes.

### Surveys

Investigations were commenced to check whether aflatoxins were present in peanuts and similar products. Carcinogenic mycotoxins are produced by various moulds, particularly *Aspergillus flavus* and are causing world-wide concern. One sample of peanuts contained a trace amount of aflatoxin B<sub>1</sub>.

A survey of the mercury concentration in tuna and other fish products was commenced late in the year and is being continued. Mercury was found in all samples of tuna, the locally canned and imported brands containing similar concentrations. Whilst the levels found to date are not considered to constitute a health hazard, they were all higher than the prescribed standard of 0.03 ppm. The latter level is considered to be unrealistic and is to be re-evaluated.

## MILK AND DAIRY PRODUCTS SECTION

Seven thousand nine hundred and fifty-five milk samples were examined during the year, these being submitted by various authorities—the Food Inspection Branch, Sydney City Council, municipal and shire Councils and health inspectors from country health districts. The greatest number of samples was received from the Dairy Industry Authority of N.S.W. This statutory body replaced the N.S.W. Milk Board in July, 1970. Control was thereby extended over the production and sale of milk to the whole of the State of N.S.W.

Of these samples two hundred and ten failed to comply with the regulations; 77 samples were deficient in milk fat; 103 showed the presence of either added water or low milk solids not fat, and 30 samples were improperly pasteurized.

### Dairy Products

Five hundred and sixty dairy products other than milk were examined during the year. Four hundred and forty-one samples of cream were examined and four found to be deficient in milk fat or pasteurization. Thirteen cream mixtures and thickened whipped cream were examined. One was deficient in fat but none contained preservatives. Thirteen samples of butter were tested, three samples taken from sandwich shops were found to be margarine.

Forty-nine ice creams and gelatos were analysed and eight found to have a low fat content. One gelato had a low fruit juice content and three had artificial sweetener (sorbitol) added. Of the six yoghurts tested, 2 were deficient in fat content.

Twenty-eight samples of miscellaneous products were examined including cheeses, flavoured milks, flavoured ices, milk ices, ice cream mixtures and milk powders, imitation milks, reconstituted milks and margarines. One flavoured milk was low in fat and one imitation milk was wrongly labelled. Ten milk bottles were found to contain foreign matter, mostly comprising moulds and dirt.

### New Methods

During the year various new methods were carefully evaluated and introduced into the section. These methods included those for lactose and inorganic phosphates in milk, sorbitol in ice creams and similar products and the phosphatase activity in milk and dried milk.

The routine work of the section is characterized by the use of various semi-automated instruments operated by non-professional personnel. These instruments include the "Milko" (fat) tester, "Pro-Milk" (protein) tester and the "Fiske" thermistor cryoscope. The amended regulation for cream requires the determination of its pH. This is routinely determined using a Pye model 291 pH meter.

## MEAT PRODUCTS SECTION

Four thousand four hundred and sixteen samples of meat and meat products were examined by the section during the year. Of the 3881 samples submitted under the Pure Food Act, 196 out of 401 samples of meat, fresh and minced, were found to be preservatized with sulphur dioxide, and two with ascorbic acid. The addition of preservative to meat and minced meat is prohibited. Samples are routinely examined in the field using the malachite green field test and only those which are positive or doubtful are submitted to the laboratory for analysis.

Three thousand one hundred and five samples of sausages and sausage meat were examined and 311 found to contain excessive amounts of sulphur dioxide. Seven hundred and forty-five (24.0 per cent) were found to contain excess fat, nearly three times greater than was that found last year (274 out of 3169). This was undoubtedly due to the fact that all samples of sausages and sausage meat are now routinely tested for fat content. The extra burden on the laboratory is considerable, but the value of this work is apparent. It is hoped that this more critical monitoring will lead to a definite improvement in the quality of these products.

Three hundred and twenty-four samples of smallgoods were examined and 6 were found to contain excess sulphur dioxide. Considerable attention has been given to the nitrite content of smallgoods, and this is now routinely determined. Out of 98 samples examined, 34 were found to have nitrite concentrations above the legal limit. The nitrate content of these samples was very low. Apparently the normal trade practice is now to use potassium nitrite alone, rather than mixtures of nitrate and nitrite.

The pH of thirteen of the forty-two tripe samples submitted was found to be outside the permitted range. Several had low pH's, indicating inadequate processing. Five of the tripe samples were found to be illegally preservatized with sulphur dioxide.

Five hundred and thirty-five samples of minced meat and sausages were submitted on behalf of the Government Stores Department in connection with supplies to government institutions. This represented a continued increase over previous years, and as a full analysis is carried out on each sample places a considerable strain on the facilities of the section. One hundred and twenty-one of these samples were found to be deficient in meat content by the prescribed method and 82 found to contain excess fat. Eighteen samples supplied as minced beef were found to contain a proportion of mutton.

In addition to the large number of meat samples submitted for routine analysis, a considerable number of samples was analysed for special purposes. These included several samples of frozen pre-packed steaks which were found to contain an enzymatic tenderising agent, probably papain. The use of such preparations is not permitted in this State.

A number of samples of meat was examined which had the appearance of minced meat, but which was sold to the inspectors as sausage meat. Analysis showed that starch had been added to the meat in place of the normal cereal filler. These products all contained sulphur dioxide which is permitted in sausage meat. There is no doubt that house-wives would have purchased this product in the belief that it was minced meat. This is another example of how certain butchers defraud the public whilst apparently conforming to the requirements of the regulations.

A short study was carried out during the year to determine the effect of sulphur dioxide on the keeping quality of minced meat and sausage meat. The storage life of minced meat kept in a refrigerator was increased from 4 to 9 days by the addition of comparatively small amounts of sulphur dioxide (110 parts per million). The fresh appearance of the meat was retained for a much longer period and in decomposing, the normal putrefactive odour was replaced by one which was weaker and less objectionable. Sausage meat would be expected to decompose even more quickly than minced meat because of the presence of farinaceous material and the fine state of subdivision of the meat. Using a concentration of sulphur dioxide near the legal maximum, the storage life was increased from 3 to 13 days. These findings are in agreement with those of other investigators.

The use of casein as a substitute for meat was detected in a number of samples of sausages and smallgoods. Present methods for the detection and estimation of casein are not entirely satisfactory, but it is hoped that the double immunodiffusion technique of Ouchterlony, now used for the detection of foreign meats, can be adapted for this purpose.

### Fat in Minced Meat

During the year a study was made of the fat content of minced meat and a recommendation made to the Food Standards Committee of the National Health and Medical Research Council. It was felt that it was an anomaly that there should be a fat limit for sausages but none for minced meat. A preliminary survey of fifty consecutive samples of minced meat, routinely tested by the laboratory, gave a range of fat contents from 7.1 per cent to 34.9 per cent with an average of 14.3 per cent. The results showed that 70 per cent of the samples contained not more than 15 per cent fat and 84 per cent contained not more than 20 per cent fat.

An evaluation panel convened by the Government Analyst contained representatives from the laboratory, the Pure Food Branch and the Meat and Allied Trades Federation. Samples of meat were visually evaluated before and after mincing. One category tested was lean topside beef from which all the adherent fat had been removed to give a minimum figure for completely lean meat. This category had an average fat content of 3.2 per cent, with a maximum fat of 8.5 per cent. Another category represented average beef trimmings submitted by six butchers' shops, as normally used for minced beef. These fat contents ranged from 9.7 per cent to 23.2 per cent. The sample with a fat content of 18.0 per cent was voted by all nine members of the panel as being a satisfactory product but only 4/9 of the panel voted the unminced meat with 23.2 per cent fat as being acceptable. Other factors involved are the loss of fat on cooking which represents as economic waste to the purchaser, and dietary implications.

### FOOD BACTERIOLOGY SECTION

One thousand seven hundred and ten samples were examined during the year, a record for this section. Various surveys were undertaken, the section taking the initiative in proposing specific projects, and the staff of the Health Districts throughout the State co-operated in providing the samples requested.

The categories of food and surveys carried out were as follows:

Alleged Food Poisoning	..	51	Frozen Prawns	..	..	106	
Sandwiches	..	..	60	Oysters	..	..	36
Pig diaphragms	..	..	60	Mussels	..	..	26
Fish Cakes	..	..	50	Fungi (Aspergillus)	..	..	42
Minced Meat	..	..	82	Egg pulp	..	..	20
Dried Meat Meal	..	..	30	Dairy Products	..	..	23
Imported Food	..	..	26	Soil	..	..	1051
Coconut	..	..	22	Disinfectants	..	..	25

Sixty pig diaphragms were examined for the presence of the parasitic nematode *Trichinella spiralis*. No sample yielded any of these organisms. Samples were obtained mostly from the State abattoirs at Homebush. Whilst this organism has not yet been found in animal species in Australia, it is considered desirable that constant supervision should be exercised against the possibility of it being introduced into this country.

Fifty fish cakes obtained from fish shops in the Sydney metropolitan area were examined to determine their microbiological status. This project is being carried out in co-operation with the CSIRO Division of Food Preservation. Data collected could be used in proposing standards for this type of product.

Eighty-two samples of minced meat were examined for the presence of *Salmonella* species. Four of these yielded *S. typhi-murium*. A study was made to determine the effectiveness of sulphur dioxide in inhibiting the growth of coagulase positive *Staphylococcus aureus* in minced and sausage meats. It was found that sulphur dioxide did inhibit growth at a level of 110 parts per million.

A survey was carried out to determine the presence of *Salmonella* in meat meal obtained from an abattoir in the Sydney metropolitan area. *Salmonella* and *Arizona* species were isolated. It is thought that this contamination is due mainly to insects, which were found in the meal.

A wide variety of foodstuffs, imported from Hong Kong and other South East Asian countries were examined to determine their microbiological status. These foods included canned foods, noodles, dried vegetable, and dried fish. All foods examined were found to be satisfactory. The survey is continuing.

Twenty-two Coconut samples were examined. All were found to contain *E. coli* type I. Coagulase positive *Staphylococcus aureus* was found in some samples. No *Salmonella* was isolated from these products.

One hundred and six Frozen prawn samples imported from India and Malaysia were examined. This work is continuing and is supplemented with regular feeding trials to ensure the absence of bacterial toxins. Laboratory examination has shown most samples to be satisfactory. Most of the problems associated with frozen prawns appears to be related to unsatisfactory storage on board ship and in the warehouse.

Oysters were obtained from the major areas in the State where commercial oyster-growing is practised and samples were examined. Most samples came from the Georges River. Mussels were examined from the Sydney Harbour. A statistical analysis of the results is being carried out.

A survey is being conducted on hospital food obtained from the North Ryde Psychiatric Hospital and the Ryde Soldiers' Memorial Hospital. The purpose of this survey is to draw up adequate standards for frozen hospital food.

*Bacillus cereus* and *Bacillus mycoides* were isolated from food implicated in a food poisoning outbreak. Both of these organisms are recognized as potential food poisoning organisms. Whilst single cases of food poisoning are investigated by this section, the specimens and foods from any food poisoning outbreak are examined by the Institute of Clinical Pathology and Medical Research.

Forty-two species of *Aspergillus* fungi were examined for the production of aflatoxin. These were pure strains which were obtained by the courtesy of the University of N.S.W. and this work was carried out to gain experience in this field. Only one species, *Aspergillus parasiticus* was found to produce aflatoxins B<sub>1</sub> and G<sub>1</sub>. These results are consistent with other work reported in this field. Aflatoxins are powerful carcinogenic substances.

A series of experiments was carried out to determine the effectiveness of two commercial ultra-violet water sterilizers. Water was impregnated with various common pathogens and passed through the sterilizers under normal operating conditions. Both sterilizers were found to be highly effective in destroying heavy loads of *Sarcina lutea*, *Staphylococcus aureus*, *Clostridium welchii* and *Bacillus cereus*.

A survey was commenced during 1970 to examine sea-water, mud and shellfish for the presence of the food poisoning organism *Vibrio parahaemolyticus*. This organism is alleged to have caused 70 per cent of the food poisoning outbreaks in Japan. The organism has also been isolated from marine muds in the United States.

A survey on the microbiological status of commercially produced eggpulp was commenced in 1970. The high bacterial counts in all cases appear to be due to inadequate pasteurisation.

Meat products, such as meat pies and sausage rolls were examined for the presence of spoilage and food poisoning organisms. *Bacillus megaterium* was isolated and identified in several sausage rolls. This organism is able to survive the cooking process and lead to spoilage, if the product is not adequately refrigerated.

Sixty sandwiches were obtained from the Sydney metropolitan area and examined for the presence of coagulase positive *Staphylococcus aureus*. Only a few sandwiches were found to contain these organisms and these had been poorly stored for long periods.

A survey for the presence of *Clostridium botulinum* in soils obtained from many areas in N.S.W. was commenced in 1970. Preliminary work using pure cultures obtained from CSIRO was carried out in 1969. So far no isolations of this organism have been obtained indicating that botulism is not likely to present itself as a public health problem in this State.

PESTICIDES SECTION

Two hundred and fifty-six samples were analysed during the year. Most of the work was related to the determination of chlorinated pesticides with only a few samples being examined for organophosphates.

The main types of samples analysed were as follows:

Cow's milk	..	..	..	..	..	..	..	..	55
Human milk	..	..	..	..	..	..	..	..	10
Blood	..	..	..	..	..	..	..	..	54
Human fat	..	..	..	..	..	..	..	..	49
Foods	..	..	..	..	..	..	..	..	36
Stock foods	..	..	..	..	..	..	..	..	10
Water	..	..	..	..	..	..	..	..	28
Other samples	..	..	..	..	..	..	..	..	14

Milk and Human Milk

The survey into cow's milk was continued and the residue levels found were similar to the previous year. The average level of dieldrin at 0.0021 p.p.m. was higher than in 1969 (0.0013 p.p.m.). HCB (hexachlorobenzene) was detected in 46 per cent of the samples. Whilst the level is low, none is permitted by the *Codex Alimentarius*. A breakdown of the results in relation to codex tolerances is given below.

Pesticide	Per cent Positive	Mean (p.p.m.)	Codex Alimentarius Level	Per cent Samples exceeding Codex Level
Total DDT ..	84	0.0142	0.05	Nil
Dieldrin (HEOD) ..	84	0.0021	0.005	6
Lindane ..	20	Trace	0.008	Nil
Heptachlorepoide ..	8	Trace	..	8
Aldrin ..	28	Trace	0.005	Nil
HCB ..	46	0.0007	0.000	46

A pilot survey of pesticide residues in human milk was carried out for the Bureau of Maternal and Baby Health. This followed enquiries from the Nursing Mothers Association which encourages women to breast-feed their babies. The average level of DDT found (0.08 p.p.m.) was higher than recommended for cow's milk by the WHO (0.05 p.p.m.). This level of DDT which is permitted in milk by the F.D.A. and the WHO is more than 100 times lower than the level permitted in other foods (7 p.p.m.). WHO regards cow's milk as a basic food since it is used for infants, children, aged persons, and the sick.

The mean results obtained on the 10 human milk samples was 0.080 p.p.m. total DDT, 0.002 p.p.m. dieldrin, 0.028 p.p.m. HCB and no BHC.

Blood

Fifty-five specimens of blood were examined. This work is likely to increase since people who work with pesticides are now encouraged to have their blood checked for pesticide levels. The specimens were submitted by medical officers from the Division of Occupational Health and by hospitals.

Pesticide	Per cent Positive	Mean p.p.m.	Range
HCB .. .. .	98	0.095	0.000-1.610
BHC .. .. .	40	0.058	0.000-0.540
Total DDT .. .. .	86	0.043	0.000-0.490
Dieldrin .. .. .	72	0.028	0.000-0.206
Heptachlorepoide .. .. .	36	0.012	0.000-0.141
Lindane .. .. .	22	Trace	0.000-0.086
Aldrin .. .. .	32	Trace	0.000-0.138

Patients with high pesticide are re-examined at weekly intervals until their levels have dropped. There are no recommended maximum allowable concentrations for human blood and interpretation of the results is difficult.

Human Perirenal Fat

This survey which was undertaken to give an indication of pesticide residue levels existing in this community was commenced the previous year. Specimens of perirenal fat were taken from cadavers by the Division of Forensic Medicine and forty-nine specimens have been analysed to date.

The results are as follows:

Pesticide	Mean	Range	Remarks
Total DDT .. .. .	4.51	0.18-17.4	.....
Aldrin .. .. .	..	0.00- 0.20	9 positive samples
Dieldrin .. .. .	0.23	0.00- 2.60	.....
HCB .. .. .	1.04	Trace*- 8.02	.....
BHC .. .. .	..	0.00- 0.43	5 positive samples
Heptachlorepoide .. .. .	..	0.00- 0.04	3 positive samples
Lindane .. .. .	..	0.00- 0.02	1 positive sample

\* Trace = less than 0.001 p.p.m.

Whilst most overseas surveys report the presence of BHC, this laboratory has found only trace amounts in a few samples. Hexachlorobenzene (HCB) was detected in all samples. The presence of HCB in eggs is due to the fowls being fed seed wheat which has been treated with the fungicide HCB (hexabunt). Undoubtedly the HCB in human perirenal fats is partly derived from this source.

HCB has been implicated in outbreaks of cutaneous porphyria in Turkey (1955-60). The syndrome involved blistering and epidermolysis of the exposed parts of the body, particularly the face and hands. The diet of sufferers was found to contain HCB treated wheat. No results were given for the HCB content of blood and fat.

The perirenal fat survey has been extended to the Territory of Papua and New Guinea and fifteen autopsy fat specimens were examined. This was done at the request of the Malaria Service of the Department of Public Health of T.P.N.G. This organization has been using DDT for mosquito control for about 12 years. Since adverse publicity has been given to the use of DDT, they wished to assess the effects on people living in houses sprayed with this insecticide. Fifteen samples have been examined to date. It is interesting to note that the HCB level in these perirenal fats is lower in that country than in New South Wales.

Total DDT and metabolites found ranged from 0.04 to 11.04 p.p.m. (average 4.63 p.p.m.), dieldrin ranged from 0.01 to 0.61 p.p.m. (average 0.17 p.p.m.) and hexachlorobenzene ranged from 0.01 to 0.74 p.p.m. with an average of 0.22 p.p.m.

Water

Twenty-eight samples from drinking water supplies were examined for chlorinated pesticide residues. With one exception, all contained only trace quantities of residues. One sample received from the Oberon Shire contained 0.28 p.p.m. total DDT, 0.001 p.p.m. dieldrin and 0.004 p.p.m. pentachlorophenol. A later sample from the same source was satisfactory. There are no legislated levels for drinking water and the levels recommended for milk are used as a guide.

Food

Thirty-six food samples consisting of eggs and other food samples were examined for residues. Wheaten animal feed involved in the investigation into the HCB levels in eggs was also analysed. Many of the food samples were analysed because of complaints made to the Pure Food Branch but none showed significant levels of contamination.

The level of HCB residues in eggs was found to be between 0.013–8.10 p.p.m. Only two samples were higher than 1.00 p.p.m. Further eggs received from the same farm as the 8.10 p.p.m. samples showed lower levels after the contaminated wheat was removed from the fowl feed.

A pilot survey was carried out to investigate the pesticide levels in animal fat and lard, beef and mutton fat were analysed. Twelve samples were received from the Riverina district. The result of this study was rather disturbing and it is hoped to carry out a full scale survey of the State's meat supply during 1971.

Pesticide							Range	FDA Level
HCB	..	..	..	..	..	..	0.123–58.8 p.p.m.	0.000
Dieldrin	..	..	..	..	..	..	0.008– 0.093 p.p.m.	0.000
Total DDT	..	..	..	..	..	..	0.134– 8.66 p.p.m.	7.0

There was only one sample which was over the F.D.A. action level for DDT. All samples failed to meet the required standard for HCB and dieldrin. As there are no tolerance levels yet set in New South Wales, direct action is difficult. Food inspectors have taken samples of stock foods in an effort to locate the source of contamination. One of these samples was found to contain 40 p.p.m. of HCB.

DRUG SECTION

Three hundred and four cases were examined during 1970, which represents an increase of 40 per cent on 1969 figures. These were submitted by the following sources:

Police Department	..	..	..	..	..	..	..	160
Government Stores Department	..	..	..	..	..	..	..	48
Poisons Branch	..	..	..	..	..	..	..	26
Doctors and Hospitals	..	..	..	..	..	..	..	36
Other Government Departments	..	..	..	..	..	..	..	24
Other sources	..	..	..	..	..	..	..	10

Most of the cases submitted by the police involved the detection of substances restricted under the Poisons Act of N.S.W. and mostly related to drugs of addiction. The substances most commonly detected were cannabis, lysergide (L.S.D.), amphetamine, opium, heroin, and barbiturates. Fifteen cases related to the procuring of abortion, and these involved the analysis of blood, clothing, instruments, tablets, capsules, and solutions. Six cases were received in connection with the theft of amphetamine from a pharmaceutical company, and these involved a total of 43 pounds weight of amphetamine sulphate, mostly in 1 lb plastic bags. The contents of the bags were required to be individually analysed in order to establish that they were in fact the stolen drug and also to determine how much of the drug had been recovered by Police. Two cases with a total of twenty-seven exhibits, including cannabis, opium, and mescaline, were submitted in connection with a man charged with the murder of a suspected drug pedlar.

Of the Government Stores samples submitted, one batch of chloroform samples, one batch of imipramine tablets and one sample of ferrous ammonium sulphate failed to comply with required standards.

Samples from the Poisons Branch included Polaroid film for testing of the developer for high alkalinity, and eardrops which had caused damage to a small boy's ears. The drops were found to contain 16 per cent acetic acid when the stated concentration was 2 per cent.

Eleven samples of water, soil, and produce were received from the Riverina Health District where strychnine was being used to combat a mice plague. Fears were held that the strychnine had contaminated town water supplies and foodstuffs grown in the area, but no traces of strychnine were found.

Five samples of suspected restricted drugs were received from the Department of Public Health Prison Medical Service, and 4 from the Division of Armed Services.

Twenty-five samples were submitted by the Hospitals Commission in order to determine the quality of the pharmaceuticals being supplied to the hospitals. Three of these failed to comply with the required standard.

TOXICOLOGY SECTION

Seven hundred and forty-seven cases were submitted for toxicological examination during the year. Cases were received from the following sources:

	<i>Cases</i>							
City Coroner .. .. .	..	..	..	..	..	..	..	490
Parramatta Coroner .. .. .	..	..	..	..	..	..	..	91
Country Coroners .. .. .	..	..	..	..	..	..	..	139
Canberra Coroner .. .. .	..	..	..	..	..	..	..	12
Dog Baits, etc. .. .. .	..	..	..	..	..	..	..	15
Total .. .. .	..	..	..	..	..	..	..	<hr/> 747 <hr/>

The previously reported disparity between the number of cases received from the Parramatta Coroner and the City Coroner continued to be apparent in 1970. These numbers are not consistent with the distribution of population in the two coronial districts.

The number of supplementary exhibits, drugs, etc., received with cases remained much the same during the year. However the number of biological specimens received with each case rose from an average of 3.5 to 4.6. This, coupled with the increase in cases received, resulted in the work of the section being increased by more than a third.

Fifty-two per cent of the cases were found to contain drugs. This compares with the 4 previous years when the number of "positive" cases varied from 74 per cent to 66 per cent. This apparent increase in the proportion of cases where no poisons are found can be explained by the policy of organs being routinely submitted for examination in an increasing number of cases where a mechanical cause such as hanging, stabbing, drowning, appears to be the primary cause of death.

The development of gas-chromatographic techniques for the estimation of drugs extracted from biological specimens was foreshadowed last year. Suitable methods were developed during the year and gas chromatography, coupled with increased use of thin-layer chromatography, has permitted the section to cope with the much increased workload.

New South Wales was the host State for the 1970 Conference of State Toxicologists. Representatives attended from Western Australia, South Australia, Tasmania, Victoria, Queensland, and New Zealand. The conference was held over 3 days in October and a valuable interchange of methods and information took place. In addition to purely analytical matters, the legal responsibilities of toxicologists were reviewed with emphasis on practical ways to facilitate the work within the legal framework imposed by the statutes.

Many of the case histories accompanying the exhibits were most interesting. One case concerned an elderly widow living in a village in the northwest of the State. Her body was discovered in bed and following a post-mortem examination, specimens were sent for analysis as there was no indication of the cause of death. Routine analysis disclosed sufficient strychnine to account for death. The police then submitted the unconsumed portion of a cup of tea and some folders from A.P.C. powders which had been found beside the bed. As no traces of strychnine were found in these exhibits, a further search of the premises was made. This time the police submitted a large number of containers and empty bottles recovered from around the home, from garbage tins, and even the cesspit. Again, no traces of strychnine were found. The source of the strychnine remained a mystery until after the sale of the house. While engaged in making repairs, the new owner found a bottle in the roof space adjacent to the manhole. Subsequent analysis showed that the bottle still contained a small quantity of strychnine.

Another case concerned a man who was arrested by police after a high-speed chase of a stolen motor vehicle. After being handcuffed and placed in a police car, the arrested man said "I will die before you get me to the police station, I have just taken poison". A quantity of white powdery material was noticed on his lips, so he was forcibly held and his mouth washed out with the contents of a bottle of dry ginger ale. The man then began to laugh and said, "You bloody fools, it wasn't poison, it was a Bex powder". On reaching the police station, the arrested man was examined by the Government Medical Officer who could find no evidence of ill-effects and the man in custody denied to the doctor that he had taken poison. The doctor again examined the man an hour later without finding any abnormality. However, the man's condition deteriorated shortly afterwards and he died within a short time. Subsequent analysis showed the presence of fluoroacetate in blood and organs. The police were able to show that the deceased had been in possession of a form of this poison, known as 1080, while working in Queensland.

Details of the results of analysis are tabulated in appendix 2. In many of these cases, more than one drug was found and the quantities recovered varied from therapeutic amounts to quantities indicative of the ingestion of an obvious overdose. The presence of a drug in the viscera does not necessarily indicate that it was the cause of death. The results of analysis are interpreted when required by a senior toxicologist and by the medical officer involved in the case and this information, together with other relevant information, is considered by the coroner who makes a finding as to the cause of death.

BIOCHEMISTRY SECTION

One thousand seven hundred and eighty-eight specimens were examined during the year, a significant increase over previous years. Many analyses for individual drugs were carried out which takes more time than when batch analysis for the same class of drug can be carried out. The analyses can be classified as follows:

Metals in biological specimens	..	..	..	..	..	1,413
Drugs in biological specimens	..	..	..	..	..	470
Blood chlorides	..	..	..	..	..	51
Blood carbon monoxide	..	..	..	..	..	14
Other analyses	..	..	..	..	..	28

Exhibits were received as the result of city and country coronial enquiries (100), from the police (7), the Division of Occupational Health (476), and from other sources, including hospitals (1,205).

Trace Metals

Atomic absorption spectrophotometry was used in the analysis for the majority of the metals. Analytical requests were received for the following:

Aluminium	..	..	2	Gold	..	..	1	Nickel	..	..	2
Antimony	..	..	1	Iron	..	..	19	Silicon	..	..	5
Arsenic	..	..	222	Lead	..	..	888	Thallium	..	..	13
Bismuth	..	..	1	Lithium	..	..	38	Tin	..	..	4
Cadmium	..	..	3	Magnesium	..	..	7	Uranium	..	..	1
Chromium	..	..	8	Manganese	..	..	13	Vanadium	..	..	8
Copper	..	..	40	Mercury	..	..	106	Zinc	..	..	31

Sources of lead poisoning in children were once again disclosed when analysis of paint fragments yielded lead contents from 3.9 per cent to 24 per cent.

A collaborative survey of the determination of lead in blood was undertaken by this section in co-operation with two other laboratories in private industry. The results of this survey indicated the need for further collaborative tests to be conducted in the near future.

The significant increase in lithium determinations appeared to reflect an extending application of this type of therapy. Treatment with the salts of this metal is monitored by routine serum lithium determinations. Results are available promptly following atomic absorption analysis of serum.

An analysis for total silica on a portion of lung, removed from a patient in an operation, was requested. This estimation had not previously been required for many years. A difficulty was encountered in determining the significance of the silica content of the section analysed. It was preserved in formalin with no indication as to its fresh weight or its proportion of the total lung tissue.

A mercury lamp was purchased for the atomic absorption unit. A method is being investigated of determining mercury at low concentrations in blood, urine, and other materials, using a non-flame technique. This method will enable mercury to be estimated at normal circulation and excretion levels. The method is being compared with the colourimetric method in current use and it is expected that a change will be made to this new technique.

Drugs in Biological Specimens

Four hundred and seventy requests were received for the detection of drugs and poisons in biological fluids, most of these being as an aid to diagnosis in cases of drug overdosage or drug abuse. Requests for specific groups of drugs included the following:

Barbiturates	..	..	..	..	..	..	..	..	236
Narcotics	..	..	..	..	..	..	..	..	125
Amphetamines	..	..	..	..	..	..	..	..	20
General Drug Analysis	..	..	..	..	..	..	..	..	53

Requests were also received for the determination of twenty-six specific drugs or poisons and fourteen specimens were received in which the presence or otherwise of a drug or poison was to be established.

Most of the urine specimens analysed for narcotic analgesic drugs yielded negative results. This is probably because the major portion of the dose of morphine and most other narcotics is excreted within several hours of injection. Unless specimens can be obtained within a few hours of administration, analysis for narcotics is of little use. A study is to be undertaken to determine the urinary concentration of selected drugs at specific intervals after administration.

Several cases of suspected poisoning were investigated. One related to a soft drink bottle containing a green fluid. Two employees of a company decided they would detect the person responsible for stealing their soft drinks and placed a fluid in a bottle. A fellow employee, drank some of the fluid, mistaking it for soft drink and required hospital treatment for burns to the throat. The fluid was found to be consistent in composition with an acid cleaner and contained 40 per cent phosphoric acid. Another case involved the death of a significant number of tropical fish and goldfish in a memorial pool. Analysis of the water revealed it had been contaminated with a detergent.

Blood Chlorides

Blood specimens from the left and right chambers of the heart were submitted from fifty-one subjects whose death was apparently due to drowning. In twenty-eight of these, the difference in chloride levels was abnormal, confirming that death was due to drowning. If a body has been immersed for too long a period, this test is no longer useful and the magnesium level of the blood may be determined as an indication of drowning in salt water. Seven such specimens were analysed.

Carbon Monoxide

Fourteen exhibits of post mortem blood were analysed to determine if the subjects had died from carbon monoxide. All seven bloods which contained carbon monoxide were found to have more than a 50 per cent saturation level.

BLOOD ALCOHOL SECTION

One thousand seven hundred and ninety specimens were analysed during the year, this being a 11 per cent increase over the number of specimens received the previous year. The analyst in charge of the section attended court frequently, averaging one appearance per fortnight during the year. Some of the cases were connected with the "Breathalyzer" legislation. It was noted that the legal profession did not criticise the authenticity of the breathalyzer to any great extent. In the Higher Court where breathalyzer legislation does not apply, the breathalyzer result was accepted with little opposition. However, in one test case towards the end of the year, a university professor gave evidence on behalf of a defendant charged under the breathalyzer legislation and argued, largely on theoretical grounds, that this instrument as with other scientific instruments could be subject to errors under certain conditions. His arguments were not accepted by the court and it was noted that he had little practical experience with this particular instrument. It was brought out in evidence that police officers attached to the Breathalyzer Squad take strictly prescribed precautions in the operation of this instrument.

A large amount of preparative work was completed on the determination of blood alcohol using the gas chromatograph, prior to using this as the main analytical method during the forthcoming year. This method promises to be much more convenient and may be slightly more accurate than the Kozelka and Hine method at present in use.

The analyses for the year can be summarized as follows, the alcohol concentrations being expressed as a percentage in grammes per 100 millilitres:

(1) Blood:

Alcohol Concentration				Coroners' Cases	Police Authorities			Medical Practitioner	Hospitals	Miscellaneous
					D.U.I.	P.C.A.	Murder, etc.			
None found	..	..	..	763	Nil	Nil	Nil	1	23	..
0.015-0.050	..	..	..	124	1	1	1	4	4	..
0.051-0.150	..	..	..	247	7	38	5	27	23	..
0.151-0.300	..	..	..	268	19	37	4	33	40	..
Over 0.300	..	..	..	52	Nil	Nil	Nil	1	3	..
Total Cases	..	..	..	1,454	27	76	10	66	93	9
										Total 1,735

(2) Urine: 36 specimens.

(3) Miscellaneous Biological Materials: 19 specimens.

The category of D.U.I. refers to cases where persons have been charged with "driving under the influence of alcohol", usually following upon their involvement in a motor accident.

The category of P.C.A. refers to cases where, as the result of a breathalyzer test, a person has been charged with having more than the prescribed concentration of 0.08 per cent alcohol in his blood. A person so charged has the legal right to have a blood specimen taken for analysis by a medical practitioner. The sample is divided into two portions, one being handed to the offender and the other half being given to the police officer who sends it to this laboratory. It was found that none of these blood alcohol analyses differed significantly from the corresponding breathalyzer result when the average loss of alcohol per hour from the blood is taken into consideration. In most cases the blood sample was taken between one and two hours after the breath analysis was carried out.

The analyst in charge assisted in another Breathalyzer Training Course conducted by the police and gave lectures and practical demonstrations connected with the chemical principles involved. Sixty-one certified batches of Standard Alcohol Solution were prepared during the year for use by police officers of the Breathalyzer Squad.

The analyses of blood specimens received from an interstate laboratory were carried out early in the year, thus completing a collaborative study between different State laboratories. Whilst the results gave an interesting comparison between preservatised and unpreservatised blood samples maintained at ambient temperatures some time prior to analysis, and between analyses carried out by different methods, it was felt that no definite conclusions could be drawn unless a more comprehensive survey was undertaken.

Early in the year this section commenced to analyse blood for carbon monoxide, mostly related to cases where a determination for carbon monoxide was requested in addition to a blood alcohol analysis. Most of these deteminations are now carried out in this section rather than in the Biochemistry Section which only handles certain types of cases. Of the 80 specimens analysed, 15 were negative, 7 showed less than a 50 per cent saturation, and 58 showed more than a 50 per cent saturation of carbon monoxide, indicating that this was implicated as the cause of death.

CRIMINAL INVESTIGATION SECTION

One hundred and twelve cases involving 378 exhibits were examined during the year. All but one of these cases were submitted by the N.S.W. Police Department in connection with cases that they were investigating. The other case was examined for the Constabulary of the Territory of Papua and New Guinea. The analysts in this section gave evidence in court on 14 occasions in both the metropolitan area and country areas of the State.

The main types of materials submitted as police exhibits for examination were as follows:

Type of Exhibit	Number of Exhibits
Paint .. .. .	150
Glass .. .. .	27
Fibres and Fabrics .. .. .	28
Metals .. .. .	3
Flammable Liquids .. .. .	85
Corrosive Substances .. .. .	7
Explosive Residues .. .. .	11
Miscellaneous Materials .. .. .	78

The general categories of cases for which these exhibits were submitted are tabulated below, together with a specific description of many of the cases involved.

Category	Number of Cases	Specific Cases
Deaths .. .. .	14	Murder, Manslaughter, Suicide, Death by shooting, Death by fire, Suspected murder, Death as a result of a motor accident, Drowning.
Crimes of Violence.. .. .	14	Grievous bodily harm, Corrosive liquid throwing, Malicious wounding, Stabbing, Armed hold-up, Assault, Assault and robbery, Poisoning.
Sex Offences .. .. .	9	Rape, Attempted rape, Alleged rape, Indecent assault, Carnal knowledge, Abortion.
Fires and Explosions .. .. .	25	Arson, Suspected arson, Fire in occupied house, Explosion and fire, Suspicious fire, Possession of explosives, Throwing petrol bomb.
Larceny .. .. .	21	Break, enter and steal, Break and enter, Attempted break and enter, Theft, Payroll robbery, Stealing and receiving, Safe breaking, Goods in custody, Housebreaking implements in possession.
Motor Vehicles .. .. .	16	Culpable driving, Negligent driving, Fatal car accident, Fatal hit-run accident, Fail to stop after an accident, Motor accident, Driving under the influence of alcohol.
Miscellaneous .. .. .	12	Malicious injury, Malicious damage, Conspiracy to cheat and defraud, Obscenities drawn on buildings.

A procedure now routinely used by this section is to photograph many of the exhibits on Polaroid print material. This reduces the amount of written material that needs to be recorded and assists the analyst in correlating the exhibits with the original examination when he attends Court, which could be many months later. A Polaroid 350 camera is used for photographing the larger exhibits, most of these being photographed by flash, whilst small exhibits are photographed on a Leitz "Aristophot" photomacrographic unit fitted with a 4 x 5 inch Polaroid back. If details in the black and white photograph do not show up with a sufficient separation of tones, a Polaroid colour print is then made.

Several developmental projects were carried out during the year. Infrared spectra of a wide range of synthetic fibres were made to act as reference spectra in future examinations. Infrared spectra were also made of the film forming resins used in paints and a new set of reference spectrograph plates was made to assist in identifications made on the Littrow spectrograph.

Three groups of police officers undergoing the detectives' training course at the Police Academy visited these laboratories in connection with their training. They inspected those sections of the laboratories which are involved in forensic activities and attended a lecture by the analyst in charge of this section on the significance of our procedures and analytical findings to their work.

GOVERNMENT STORES SECTION

This section examines tender samples of various materials submitted in connection with contracts entered into by the Government Stores Department. Samples of food, meat, and drugs submitted by this Department are examined in other sections of these laboratories.

One hundred and twenty-two samples were examined during the year. Twenty-nine of these failed to comply with the appropriate specification. The main classes of products examined were as follows:

Detergents	..	..	..	..	..	..	..	..	53
Soap Products	..	..	..	..	..	..	..	..	23
Weedicides	..	..	..	..	..	..	..	..	31
Disinfectants	..	..	..	..	..	..	..	..	7
Miscellaneous Products		..	..	..	..	..	..	..	8

The spasmodic receipt of these samples has been a source of difficulty to this division for many years as tender samples commonly arrive in large batches and the results of analysis are required quickly so that the most suitable products may be chosen before a contract is signed.

A proper evaluation of these products would require that data also be obtained on their physical properties and their suitability for use under practical working conditions. There has been a tendency to prescribe a greater number of chemical and biological indices in the specifications for these products, some of which are quite sophisticated. Unfortunately, time is seldom available for such comprehensive testing. The best approach to the testing of these products is a problem that will have to be considered, in view of the limited number of staff who are available for this work.

WATER SECTION

Ten thousand two hundred and forty-seven samples were examined in this section during the year, a much greater number than in any previous year, reflecting the current awareness of problems related to water pollution. Chemical and bacteriological tests were carried out on water samples, sewage samples and trade wastes. Two thousand six hundred and eighteen chemical analyses were carried out. These included 556 sewage samples.

During the year chemical and bacteriological standards for New South Wales country water supplies were prepared. These have now been accepted by the Departments' Water Classification Committee and copies have been circulated to all country water supply authorities.

Water Pollution

Public interest in water pollution reached a climax during 1970. As a result, the section's facilities were heavily taxed by samples of trade waste and water suspected of being polluted. The impact of this section of the work is reflected in the large number of samples requiring biochemical oxygen demand estimations (398), and for various toxic materials.

Some particularly polluting discharges were examined during the course of the year and the B.O.D. figures obtained are given below.

Source of Sample	B.O.D. (ppm)
Seepage from garbage tip (Menai) .. .. .	35,000
Chemical factory waste (Villawood) .. .. .	7,500
Paper mills (Bomaderry) .. .. .	350
Cannery (Batlow) .. .. .	900
Creek below cannery (Batlow) .. .. .	500
Chemical factory (Parramatta) .. .. .	180
Masonite factory (Raymond Terrace) .. .. .	2,500
Stormwater drain (Thornleigh) .. .. .	420
Abattoir effluent (Tenterfield) .. .. .	800
Creek below abattoir (Tenterfield) .. .. .	110
Chemical factory effluent (Botany) .. .. .	1,300
Gas works effluent (Bathurst) .. .. .	3,200
Piggery effluent (Tamworth) .. .. .	1,200

The increase in water pollution work was accompanied by a growing demand for advice on unsatisfactory country water supplies. Quite a high proportion of the sections' time was devoted to investigating problems associated with the presence of excessive iron, suspended matter or the corrosive nature of public water supplies.

Much time was spent in answering telephone enquiries from health inspectors and engineers concerning problems of water treatment, etc. Advice given in this way alleviates the difficulties of many inspectors, particularly those isolated in country districts.

Assistance was given to the Public Works Department with basic research into sewage treatment works management involving analyses carried out in more detail than the routine testing of works effluents. Unfortunately it was not possible to co-operate fully with this Department because of pressure of pollution work, but 142 samples were analysed during the year. It is anticipated that this work will increase in volume and complexity as more time can be devoted to it.

The setting up of new industries in country districts created certain water pollution problems. These included a factory producing motor transmission units at Albury, a building-board factory at Oberon, and two coal-washing plants. Samples of water taken in proximity to the latter showed evidence of contamination, presumably from chemicals used in the coal-washing process.

### Water Quality Survey

Enquiries are often received regarding the characteristics of particular water supplies in N.S.W. country towns. The records are incomplete in this respect as not all authorities submit regular samples of their water supplies.

In order to rectify this lack of information a scheme was introduced in August, 1970, whereby the reticulated water of each town in N.S.W. of over 1,000 population would be analysed regularly. Requests for samples are sent to different councils at regular intervals and every town will be covered within a period of two years.

Up to the end of the year, 27 requests were sent out, and 15 samples were received and analysed. Each sample was tested for the presence of lead, copper, zinc, manganese, arsenic, detergent, phosphate, sulphate, and silicate, in addition to the normal routine tests carried out in the main water laboratory. Mercury will be included as from January, 1971.

### Chemical Analyses

In addition to the routine chemical indices, the laboratory carried out analyses for the following constituents, a number of which are now done on a routine basis. The constituent shown is followed by the number of samples involved:

Detergents (anionic) 126, phosphate 97, silicate 21, sulphate 75, and the following metals—copper 221, lead 182, zinc 126, arsenic 103, manganese 66, chromium 45, nickel 23, cadmium 23, aluminium 10, antimony 9, mercury 6, titanium 5, and silver 3.

Six samples were tested for their corrosion to copper and 3 to aluminium. Forty-two deposits from boilers, hot water systems, pipes, etc. were analysed for their mineral and organic constituents, and 42 samples were examined for oil. Samples were also analysed for fat and grease, bitumen and tar, phenols, cyanide, sulphide, thiocyanates, acidity, chlorine, chlorine demand, cyanuric acid, and volatile acids. One sample consisted of rubber latex, apparently discharged into Sydney Harbour by a carpet manufacturing firm.

A series of samples was submitted in connection with gastrointestinal complaints by a family of four. Water was taken from three water storage tanks and significant levels of mercury were detected in all three tanks. This could have been derived from a paint which contained an alkyl mercurial succinate fungicide. The levels of mercury found were above the allowable limit for drinking water (0.005 ppm) and organo-mercury compounds are known to be more toxic than the metallic salts. Advice was given that the water in the tanks should be discarded. This recommendation was carried out and recent reports are that the health of the family has improved considerably.

Pesticide analyses are also carried out on certain samples of water. These results are reported under the Pesticides Section's report.

### Bacteriological Laboratory

Seven thousand four hundred and fifty-eight samples were examined during the year as compared with 4,905 in 1969, an increase of 2,553 (50 per cent). These increases may be attributed to the larger number of samples now submitted from harbour pools and bathing beaches in connection with the survey being carried out by the Health Inspection Branch. Larger numbers of samples are also being submitted from pollution surveys of creeks, streams, and rivers throughout the State.

Routine examinations for the presence and identification of algae were carried out on regular series of samples submitted from Tamworth, Hume Reservoir, and Emigrant Creek. Other samples examined consisted of those submitted in connection with complaints of tastes and odours in water supplies.

One sample was submitted from a stock dam at Barellan after stock had died which had drunk from this source. The sample consisted of a thick green paint-like suspension which was identified as *Anacystis*, an algae which is known to be toxic to animals.

A thick white deposit was discovered on the floor and walls of a service reservoir at Kempsey. This was found to consist of numerous silicious skeletons of a diatom identified as *Synedra*. A sample of the water supplying this reservoir was requested and was found to contain an unusually high level of silica, 22.5 p.p.m. Silica is required for the development of diatoms and this could account for the high concentration of diatoms found in the reservoir.

Pope’s Visit

Samples were submitted from various private wells and boreholes at Randwick Racecourse in connection with the Pope’s visit to Australia. One well was found to be highly contaminated and lower levels of contamination were found in other samples taken from various taps around the racecourse. Chlorination of the whole system was recommended in order to render the water suitable for drinking purposes. In view of the large numbers of people which were expected to congregate at the racecourse, it was decided to disconnect the private wells at the racecourse. A temporary supply from the mains of the Water Board was provided to ensure a safe supply of drinking water for the audience.

Field Investigations

The officer-in-charge paid several visits to Tamworth in connection with the corrosion of copper pipes at Oxley High School. Visits were also made to Gosford, Wauchope, Griffith, Leeton, Narrandera, Batlow, Oberon, Lismore, Forbes, and Crescent Head (Kempsey). These visits involved the examination of various problems connected with chemical and bacteriological pollution and, in the case of the water supply at Crescent Head, a corrosion of water pipes.

FLUORIDATION OF PUBLIC WATER SUPPLIES SECTION

Fluoridation of the water supplies servicing the townships of Walcha and Mungindi was commenced during this year, bringing the number of fluoride installations under the supervision of the section to fifty-three; seventeen being operated by the Metropolitan Water Sewerage and Drainage Board and thirty-six being operated by local government authorities.

Three schools for the training of operators and others associated with the running of fluoridation plants were held in the division. Forty-one candidates successfully completed the courses making a total of 304 persons now trained.

Forty-nine centres were visited during the year in connection with the investigation, supervision, and commissioning of fluoridation plants.

Three hundred and thirty-four samples of water were analysed for their fluoride content.

The survey commenced last year summarizing the extent of fluoridation throughout the State, was brought up to date. This survey lists all country towns which have a population in excess of 1,000, with notations indicating which of these are receiving fluoridated water. Another survey classifying fluoridation plants in country areas on the basis of their control method was also updated. Both compilations find use in the administration of the section, in providing advice on fluoridation matters and for the instruction of plant operators.

RESEARCH SECTION

The analyst appointed to take charge of this new section, Dr A. W. Archer, assumed duties on 21st October. This small section will mainly be concerned with investigating new or difficult analytical methods. Whilst a proportion of time is spent in all sections on research and developmental projects, the time available for this fluctuates according to the demands for routine analytical work. An advantage of this new section is that it will be able to devote its full time to such projects. It will supplement the work of the individual sections in respect to research.

APPENDIX 1—ORIGIN OF SAMPLES RECEIVED

Source or Authority	1969	1970
Pure Food Act (Various authorities—milk, meat, miscellaneous foods, bact. samples) .. .. .	13,506	13,289
Government Stores Department (foods, meats, drugs, miscellaneous contract samples) .. .. .	664	723
Coroners’ Enquiries (toxicological cases, post-mortem blood alcohols) .. .. .	1,468 cases	1,649 cases
Police Authorities (drugs, criminal investigation, driving under influence, etc.) .. .. .	333 cases	409 cases
Division of Occupational Health (metals, dusts, pesticides, etc.) .. .. .	356	537
Local Government Authorities and Government Departments (waters, sewage and trade wastes) .. .. .	7,121	11,940
Miscellaneous Authorities (food and miscellaneous materials) .. .. .	2,369	1,461

## APPENDIX 2—RESULTS OF VISCERAL EXAMINATIONS

Nature of Drug or Poison											Number of Cases
No poisons found	..	..	..	..	..	..	..	..	..	..	355
Amitriptyline..	..	..	..	..	..	..	..	..	..	..	4
Arsenic	..	..	..	..	..	..	..	..	..	..	5
Barbiturates—											
Amylobarbitone	..	..	..	..	..	..	..	..	..	..	48
Amylobarbitone, plus quinalbarbitone	..	..	..	..	..	..	..	..	..	..	9
Barbitone	..	..	..	..	..	..	..	..	..	..	3
Butabarbitone	..	..	..	..	..	..	..	..	..	..	2
Butobarbitone	..	..	..	..	..	..	..	..	..	..	7
Cyclobarbitone	..	..	..	..	..	..	..	..	..	..	1
Methylphenobarbitone	..	..	..	..	..	..	..	..	..	..	1
Pentobarbitone	..	..	..	..	..	..	..	..	..	..	122
Pentobarbitone, plus carbromal	..	..	..	..	..	..	..	..	..	..	36
Phenobarbitone	..	..	..	..	..	..	..	..	..	..	4
Quinalbarbitone	..	..	..	..	..	..	..	..	..	..	7
Brominated Ureides	..	..	..	..	..	..	..	..	..	..	40
Caffeine	..	..	..	..	..	..	..	..	..	..	7
Carbon Monoxide	..	..	..	..	..	..	..	..	..	..	34
Chloral Hydrate	..	..	..	..	..	..	..	..	..	..	15
Chlorides (Blood)	..	..	..	..	..	..	..	..	..	..	13
Chlordiazepoxide	..	..	..	..	..	..	..	..	..	..	1
Chloroform	..	..	..	..	..	..	..	..	..	..	1
Chloropicrin	..	..	..	..	..	..	..	..	..	..	2
Chloroquine	..	..	..	..	..	..	..	..	..	..	1
Chlorpromazine	..	..	..	..	..	..	..	..	..	..	3
Cocaine	..	..	..	..	..	..	..	..	..	..	2
Cyanide	..	..	..	..	..	..	..	..	..	..	1
Diazepam	..	..	..	..	..	..	..	..	..	..	10
Dicyclomine	..	..	..	..	..	..	..	..	..	..	1
2-4 Dinitrophenol	..	..	..	..	..	..	..	..	..	..	2
Emetine	..	..	..	..	..	..	..	..	..	..	1
Endosulfan	..	..	..	..	..	..	..	..	..	..	1
Ephedrine	..	..	..	..	..	..	..	..	..	..	1
Ethchlorvynol	..	..	..	..	..	..	..	..	..	..	2
Ethyl Alcohol—											
None found	..	..	..	..	..	..	..	..	..	..	424
Less than 0·050 per cent	..	..	..	..	..	..	..	..	..	..	68
0·051 per cent to 0·150 per cent	..	..	..	..	..	..	..	..	..	..	83
0·151 per cent to 0·300 per cent	..	..	..	..	..	..	..	..	..	..	77
More than 0·300 per cent	..	..	..	..	..	..	..	..	..	..	30
Fluoroacetic Acid	..	..	..	..	..	..	..	..	..	..	1
Glutethimide	..	..	..	..	..	..	..	..	..	..	8
Hydroxychloroquine	..	..	..	..	..	..	..	..	..	..	1
Imipramine	..	..	..	..	..	..	..	..	..	..	1
Iodine	..	..	..	..	..	..	..	..	..	..	1
Lead	..	..	..	..	..	..	..	..	..	..	1
Mefenamic Acid	..	..	..	..	..	..	..	..	..	..	1
Methaqualone	..	..	..	..	..	..	..	..	..	..	22
Morphine	..	..	..	..	..	..	..	..	..	..	1
Nicotine	..	..	..	..	..	..	..	..	..	..	1
Nortriptyline	..	..	..	..	..	..	..	..	..	..	2
Organic Phosphates	..	..	..	..	..	..	..	..	..	..	2
Paracetamol	..	..	..	..	..	..	..	..	..	..	2
Paraldehyde	..	..	..	..	..	..	..	..	..	..	5
Pethidine	..	..	..	..	..	..	..	..	..	..	2
Phenacetin	..	..	..	..	..	..	..	..	..	..	3
Phenytoin	..	..	..	..	..	..	..	..	..	..	5
Quinidine	..	..	..	..	..	..	..	..	..	..	1
Quinine	..	..	..	..	..	..	..	..	..	..	1
Salicylamide	..	..	..	..	..	..	..	..	..	..	1
Salicyclic Acid	..	..	..	..	..	..	..	..	..	..	20
Strychnine	..	..	..	..	..	..	..	..	..	..	5
Theophylline	..	..	..	..	..	..	..	..	..	..	1
Thioridazine	..	..	..	..	..	..	..	..	..	..	2
Trifluoperazine	..	..	..	..	..	..	..	..	..	..	4

DIVISION OF FORENSIC MEDICINE

Director: Dr JOHN LAING, M.B., B.S., M.C.P.A.

Location: Division of Forensic Medicine, 102 George Street, Sydney

STAFF

Medico-Legal Section

- 3 Medical Officers
- 10 Morgue Assistants
- 1 Trainee Medical Officer

Medico-Legal Laboratory

- 1 Forensic Microbiologist
- 1 Microbiologist
- 1 Medical Technologist
- 2 Technical Officers
- 3 Technical Officers-in-Training
- 3 Laboratory Attendants
- 1 Office Assistant
- 3 Typists

ACTIVITIES

1. Medico-Legal Section

This section performs autopsies upon all bodies coming under the jurisdiction of the City Coroner. It works in close co-operation with metropolitan police force and is available to visit scenes of crime when requested. It undertakes post-graduate training and demonstrations in forensic matters to interested medical practitioners. The section undertakes the medical investigation of aircraft fatalities within a 30-mile radius of Sydney on behalf of the Department of Civil Aviation and the Royal Australian Air Force, visiting the scene of the accident as required, and performing the requisite autopsies. It gives advice and assistance to country coroners and medical practitioners throughout the State. The section previously undertook the examination of criminal assault for the Police Department but these are now carried out by the police medical officer. The medical staff is required to give evidence in various courts in connection with this work. The above services are available day and night all the year round.

Due to the shortage of medical officers which will be discussed later, the remaining pathologists are fully absorbed in the increasing demands of the metropolitan area and the concept of a 'Flying Squad' still remains to be implemented. This is unfortunate since the demands for our services by country police and coroners, due to the inadequacies of their local forensic facilities, are increasing. It also explains why there is difficulty in supplying a pathologist to attend distant aircraft fatalities.

Table 1 gives a comparison of the activities for the years 1969 and 1970.

TABLE 1

	Year ending 31st December, 1969	Year ending 31st December, 1970
Autopsies for City and Country Coroners (including weekends) ..	2,415	2,499

The number of necropsies shows a slight increase despite the rising number of autopsies being performed in metropolitan hospitals by permission of the City Coroner, particularly when organ transplant material is required.

The category of autopsies known as "external only" is no longer performed so that each autopsy represents a fully detailed internal examination. Therefore, although the total body figures have only increased slightly the overall work load is heavier.

2. Medico-Legal Laboratory

The laboratory provides pathological and biological services to assist in the investigation of crimes and in the determination of causes of death in cases for various coroners. The work includes histopathology, the grouping of blood and secretions, the investigation of blood stains and seminal stains and the examination of hairs and fibres. These services are available for both metropolitan and country cases. An analysis of the specimens submitted and the number of examinations performed is given in table 11.

TABLE 11

										1969	1970
Post mortem tissues submitted for histopathological examination										1,163	1,273
Number of slides prepared										10,388	11,641
Forensic science exhibits										..	1,522

Due to changes in records systems, the figures for forensic science exhibits cannot be accurately compared against 1969, but here again, the total submissions are gradually rising and the tests involved are becoming more varied and extensive.

SPECIAL FEATURES OF THE YEAR’S ACTIVITIES

The Director continues to lecture in forensic medical to both the University of Sydney and the University of New South Wales and assists in the training of members of the New South Wales Police Force.

Several factors have operated to change the general duties of the division. At the beginning of the year Dr Corby resigned and returned to England. The loss of pathologists, plus the prolonged illness of the Director over the year placed a great load on the remaining staff. Consequently the division was forced to refer cases of sex assault to appropriate hospitals and arrangements were made to transfer these cases to the Police Medical Officers’ Department.

Earlier in the year Mr R. Howell, a well-qualified and experienced scientist who has recruited from the United Kingdom visited New Zealand to assess the value of certain equipment for the division’s new premises.

Further discussions have been held with the appropriate authorities during the year concerning the conduct of coronial post mortems in various teaching hospitals. Such moves should assist in relieving the division of some of its work load.

Accommodation

The cramped accommodation of the division in all sections continues to cause concern. Some temporary measures have been carried out to relieve the position to a degree. The medical officers were previously allocated extra office space in Parkes House, Bridge Street but due to demolition of this building they are now accommodated in 86-88 George Street North.

The present storage capacity of the City Morgue for only thirty bodies is also greatly overloaded. Extra storage space for bodies has been obtained with the co-operation of Lidcombe Hospital, Callan Park Hospital and Gladesville Hospital, but here again, the dispersal raises administrative problems.

The Medico-Legal Laboratory suffers similarly with lack of storage space for exhibits and shortage of space for staff and equipment. The solution to these difficulties lies with the completion of the division’s new accommodation in Parramatta Road, Camperdown. The arrangements for this are proceeding. It is expected to occupy the new premises in mid-1971.

DIVISION OF OCCUPATIONAL HEALTH AND POLLUTION CONTROL

Director: ALAN BELL, M.B., B.S., D.I.H.

Location: Joseph Street, Lidcombe

FUNCTIONS AND ORGANIZATION

Because of the division’s constantly increasing involvement in pollution, its title was change from the “Division of Occupational Health” to the “Division of Occupational Health and Pollution Control”.

In general, the responsibilities of the division are to safeguard the health of people at work and to assess, and control, certain sources of environmental pollution. To achieve the above the division liaises with other government departments. Staff, *inter alia*,

- (a) Investigate and advise on methods of controlling occupational health hazards.
- (b) Provide a diagnostic service for occupational diseases.
- (c) Implement the N.S.W. Clean Air Act, 1961-1964 and the Radioactive Substances Act, 1957-1967 and their regulations. When proclaimed the division will also administer the Clean Waters Act, 1970.

The division now comprises, apart from clerical staff, five Branches, namely:

- (1) Industrial Hygiene
- (2) Medical
- (3) Radiation
- (4) Air Pollution Control
- (5) Water Pollution Control

The Industrial Hygiene Branch deals with toxicology, agricultural health, noise, the evaluation of personal protective equipment, ergonomics and departmental safety. On behalf of the Workers' Compensation (Dust Diseases) Board and the Metropolitan Water, Sewerage and Drainage Board it also investigates occupational dust exposures.

The Medical Branch has sections dealing with occupational health and nursing pathology, human kinetics and occupational psychology.

The engineering staff of the Air Pollution Control Branch examine applications with respect to the licensing of scheduled premises, investigate the operation of equipment emitting pollutants and enquire into complaints. Where necessary advice is given to industry and to Local Authorities on control methods. The branch also operates a monitoring network to determine the extent and type of air pollution.

The Radiation Branch reports upon applications for licences under the Act and advises on the safe use of X-ray machines and radioactive substances, no matter where used. It also operates a film badge service and, in its laboratories, assesses certain forms of radioactive environmental pollution.

The Water Pollution Control Branch has just been formed and staff are being recruited.

### ACCOMMODATION

The division's new, and expanded, premises are now fully operational. Our former premises will be re-occupied to house the Water Pollution Control Branch until additional new laboratories and office accommodation can be built.

### OVERSEAS VISITORS TO THE DIVISION

The division entertained several colleagues from overseas including:

Dr F. Bairstow, Associate Director, Industrial Relations Centre, McGill University, Montreal, Canada.

Dr S. Gauvain, T.U.C. Centenary Institute of Occupational Health, United Kingdom.

Mr R. C. Harrington, National Air Pollution Control Administration, U.S.A.

Dr V. L. Pevi, Workmen's Compensation Bureau, Manila, Philippines.

Mr J. Philip, Head of Biology Division, Unilever Research Laboratory, Bedford, England.

Dr T. J. Regan, Medical Director, Colgate Palmolive Co., New York, U.S.A.

Miss J. Ritchie, Department of Health, Auckland, New Zealand.

Dr J. Robertson, Chief Medical Officer, Unilever Pty Ltd, London, England.

Mr P. W. Spaite, National Air Pollution Control Administration, Cincinnati, Ohio, U.S.A.

Mrs G. Taylor, Department of Health, Wellington, New Zealand.

Mr J. D. Yocke, Engineer, Environmental Health Co-ordinator, Esso Ltd, New York, U.S.A.

In addition, Dr Jose Ibarra, of the Philippines Department of Health and a World Health Organization Fellow, was seconded to the division for 3 months training in industrial hygiene. Mr L. E. K. Tieng, Head of Singapore's Anti Pollution Unit, studied under the Colombo Plan, in the division for a period of 2 months.

### STAFF

The division's authorized establishment was increased by fifteen to ninety; four trainees were also appointed to the division. Dr G. W. Danger, formerly of Yallourn, Victoria, was appointed in September, to the newly created position of Medical Officer, Newcastle State Dockyard.

After being with the division since 1958, Dr D. C. Trainor retired from his then position as medical officer, seconded from the division, to the Workers' Compensation (Dust Diseases) Board. During the many years he was with the division Dr Trainor made many contributions to the professional literature, particularly in the field of toxicology; his advice, and guidance, on many difficult problems was repeatedly sought not only by specialists, those in private industrial medical practice, general practitioners, managers of factories and by unionists.

Dr A. Bell attended WHO's Inter-regional Symposium on Air Quality Criteria and Guides was held in Geneva; subsequently he visited the United Kingdom and parts of the U.S.A. to enquire into the organization of water pollution laboratories and to recruit staff.

Mr R. P. Murphy accepted an invitation to give lectures on air pollution at WHO's Inter-regional Training Course on the Public Health Aspects of Environmental Pollution Control, which was held in Osaka, Japan.

Mr Murphy also visited Tasmania, at the request of the Tasmanian Government, to advise on air pollution control at Burnie and also on pollution legislation.

Dr G. C. Cleary and Mr J. Pottinger, also of the Air Pollution Control Branch, attended the Washington International Air Pollution Congress.

Mr J. Wright visited New Zealand to study that country's water pollution legislation and the ways in which pollution is evaluated and abated.

The following reclassifications occurred:

- Mr J. Chesworth to Engineer III.
- Mr D. Johnson from Technical Officer (Scientific) to Chemist, Grade 1.
- Mr O. Lomaev from Technical Officer (Scientific) to Scientific Officer, Grade 1.
- Dr E. O. Longley as Senior Specialist
- Mr B. Longstaff from Grade 1, Year 1 to Grade 1, Year 2, Scientific Officer.

The following academic qualifications were obtained:

- Mr J. G. Allen: B.Sc. (Applied Psychology)
- Dr E. Francis: Ph.D. (Sydney University)
- Mr P. Roman: B.Sc. (University of New South Wales)
- Mr J. Wright: Master of Engineering Science (Public Health Engineering).

REPRESENTATION ON COMMITTEES AND NEW SENIOR APPOINTMENTS

Divisional staff are on approximately sixty technical, scientific, medical and nursing committees. New appointments relate to non-destructive testing aspects of air pollution, fumigation, noise, refuse disposal, industrial safety and the flammability of textiles.

- Mr J. G. Allen: Chairman of the Industry Standing Committee of the N.S.W. Association for Mental Health.
- Dr A. Bell: Programme Chairman, N.S.W. Industrial Safety Conventions and Exhibitions.
- Miss N. Bundle: Member of the Permanent Commission and International Association on Occupational Health and member of the Scholarship Selection Committee for Occupational Health Nursing Certificate Course.
- Dr G. Cleary: Chairman of Executive Committee of the International Union of Air Pollution Prevention Associations and Consultant to Study Group Investigation on the Health of School Children in New South Wales.
- Dr E. O. Longley: Member of the Permanent Commission and International Association on Occupational Health and Chairman of the Australian Branch, International Society of Rural Medicine and Chairman of the Medical Subcommittee of the Industrial use of Enzymes Committee
- Mr J. Pottinger: Lecturer on Air Pollution, Health Inspection Certificate, Sydney Technical College.
- Mr G. R. Simpson: Chairman of the Technical Subcommittee on the Industrial Uses of Enzymes
- Mr H. R. Weston: Lecturer on Noise Control, Health Inspection Certificate, Sydney Technical College.
- Mr J. Wright: Examiner in Public Health Engineering (IIB). N.S.W. Department of Technical Education.

STATISTICAL DATA

(1) Industrial Hygiene Branch

	1970	1969
Total number of visits .. .. .	1,781	1,366
(a) Agricultural Health Field Cholinesterase Tests .. .. .	400	500
(b) Departmental Safety Programme .. .. .	155	19
(c) Ergonomics .. .. .	107	249
(d) Noise—		
Industrial .. .. .	219	} 291
Community .. .. .	174	
(e) Personal Protective Equipment .. .. .	47	42
(f) Industrial Hygiene and Toxicology .. .. .	860	623
(g) Inspections of Theatres and Halls .. .. .	10	6

**(2) Medical Branch**

	1970	1969
Total number of visits .. .. .	1,596	1,593
(a) Investigations by Medical Officers .. .. .	39	188
(b) Medical examinations and spirometry .. .. .	747	690
(c) Medical examinations conducted on behalf of Dust Diseases Board	720	611
(d) Vision screening .. .. .		39
(e) Visits by Adviser, Occupational Health Nursing .. .. .	72	40
(f) Occupational Psychology, visits and projects .. .. .	18	25
Pathology Laboratory: Total number of tests .. .. .	9,865	9,675
Blood slides examined for evidence of lead poisoning:		
(1) sent in by factory medical officers .. .. .	2,409	4,350
(2) from patients seen at the division .. .. .	313	443
(3) other pathology tests .. .. .	7,143	4,880

**(3) Air Pollution Control Branch**

Total number of investigations and inspections .. .. .	2,965	2,494
Visits to factory premises (Scheduled and non-scheduled) .. .. .	2,064	
Investigations of complaints, visits to complainants and Councils .. .. .	647	
Tests at industrial premises .. .. .	230	
Atmospheric tests .. .. .	26	

**(4) Radiation Branch**

Total number of visits .. .. .	1,313	1,255
Licensing investigations .. .. .	174	

**(5) Water Pollution**

Total number of field enquires and investigations .. .. .	34	65
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The above figures do not necessarily convey an accurate idea of the work undertaken; for example in "occupational psychology", to do anything worthwhile it is necessary to spend considerable time with a few companies rather than one or two visits to a large number of companies.

It is clear that our new location at Lidcombe has had a significant effect on the pattern of certain activities; for example, during the last two years the number of patients examined has decreased.

Despite the large number of industrial visits made each year, the results of a limited questionnaire survey of small factories revealed that only in a few cases was the existence of the Division known to management; this is unfortunate as most of those factories had had problems where staff could have been of assistance.

**EDUCATIONAL ACTIVITIES****(a) Publications**

Eleven articles were published overseas: including—

- "Oesophageal Compression Due to Silicotic Mediastinal Lymph Glands". *Transactions Soc. Occp. Med.*; p.69; vol. 20; April. E. O. Longley
- "Techniques and Standards in the Implementation of Emission Standards for Air Pollution Control Programmes"; Proceedings of the Symposium "Pollution Problems in Our Environment". *American Chem. Soc. and Chem. Ins.*, Toronto, Canada; May, G. J. Cleary and J. L. Sullivan.
- "The Clean Air Society of Australia and New Zealand"; *J. Air Pollution Control Assoc.* pp. 747-748; vol. 20; Nov. G. J. Cleary.
- "Continental Report: Australia and New Zealand". Proceedings of the 2nd International Clean Air Congress, Washington; U.S.A. D. J. Cleary and J. Schroeder.
- "Some Considerations in the Evaluation and control of Odours". Proceedings of the 2nd International Clean Air Congress, Washington; U.S.A. G. J. Cleary.
- "Collection of High Resistivity Materials by Electrostatic Precipitation". Proceedings of the 2nd International Clean Air Congress, Washington, U.S.A. J. Pottinger.
- "Preliminary Assessment of Air Pollution in Singapore". Report to the World Health Organisation. G. J. Cleary.
- "Air Pollution—An appraisal". Paper delivered at W.H.O. Inter-regional Seminar on Air Pollution, Osaka. R. P. Murphy.
- "The Control of Air Pollution". Paper delivered at W.H.O. Inter-regional Seminar on Air Pollution, Osaka. R. P. Murphy
- "The Present Position in Australia with Respect to Air Quality Criteria, Guides and Standards and the Control of Pollution by Other Means." Working Paper No. 31, for W.H.O. Inter-regional Symposium on Air Quality Criteria and Guides, Geneva. A. Bell.
- "A Description of Australian Industry, The Extent of Air Pollution and Legislative Methods of Control Used by Individual State Governments". Paper presented at W.H.O. Inter-regional Symposium on Air Quality Criteria and Guides, Geneva. A. Bell.

In addition 23 articles were also published in Australian Journals: these included:

- "Control of Carbon Monoxide Emissions from Motor Vehicles by Carburettor Adjustment". *Clean Air Society Journal*; p.16; vol. 4, No. 1. April, L. Ferrari, D. Palmer and R. P. Murphy.
- "The Legislation relating to Water Pollution Control in New South Wales," *Australian Health Surveyor*, p. 13. May. J. Wright.
- "Human Kinetics". *Australian Physical Educational Association Journal*; p. 5; vol. 1, No. 2; June, K. Betts.
- "Cotton Dust Exposure in the Garnetting Trade". *Aust. Med. J.*; pp. 1151-1152; No. 23; 1; June 6th. G. R. Simpson.
- "Air Pollution and Urban Development". *Royal Aust. Planning Inst. J.* pp. 67-76; No. 3; 8; July. R. P. Murphy
- "Noise on the Farm"; *Farm Power*; p. 56; July; H. R. Weston.
- "Industrial Skin Cleaners". *Medical J. of Aust.* p. 1021; 2 November 28th. J. G. Hughes and A. Cathcart.

#### DEPARTMENTAL PUBLICATIONS

The following were produced or revised:

- Kinetics for Nurses*
- Occupational Skin Diseases*
- Inorganic Lead Poisoning*
- Guide to Respiratory Protection.*

#### (b) Lectures

Eight hundred and thirty-seven lectures to approximately 12,000 people were given; many were at the University and post graduate levels.

Papers were delivered at the following Societies, major Conventions, Congresses, Seminars and Symposia:

- Australian Institute of Radiography, Adelaide. "Use of filters in Public Radiography".
- Australian Society on Food Preservation, Sydney. "Hazards in Packaging Industry".
- Australian Petroleum Exploration Association, Sydney. "Air Pollution in the Refining and Utilisation of Petroleum."
- Australian Institute of Health Surveyors, Sydney. "Community Noise".
- Clean Air Society, Sydney. "Air Pollution in Overseas Countries".
- Industrial Design Institute, Sydney. "Ergonomics and the Designer."
- Institute of Engineers, Sydney. "Clean Air Act."
- Institute of Management, Sydney. "Air Pollution and Urban Development."
- Institute of Industrial Safety Officers, Sydney. "Mental Stresses and Strains."
- Institute of Industrial Engineers, Sydney. "Mental Health."
- Institute of Technology,<sup>f</sup>Sydney. "Various Aspects of Industrial Poisoning."
- Institution of Engineers, Newcastle. "Industrial Noise Pollution."
- N.S.W. Industrial Safety Convention, Sydney.
  - "Lasers and Microwaves."
  - "The Role of the Industrial Hygienist in Safety"
  - "The Toxicology of Plastics"
  - "Accident Prevention in Industry: Philosophy and Policy on Occupational Health Nursing"
  - "Slippery Floors"
  - "Mental Health"
- Office Landscaping Symposium, Melbourne. "The Ergonomics of Furniture Design."
- Royal Australian Pharmaceutical Society, Sydney. "Hazards in Drug Manufacture."
- University Chemical Engineering Symposium, Sydney. "Environmental Pollution."
- Symposium "Crisis in Pollution 1970", Sydney. "Air Pollution: The Evaluation of Atmospheric Odours."
- Sixty-first Annual Conference The Association of Local Government Clerks of New South Wales, Sydney. "The Role of Local Government in Air Pollution Control."
- Australian Weeds Conference, Hobart. "Factory and Field Hazards of Various Weedicides."
- Water Research Foundation and Local Government Engineers Symposium, Wollongong. "Some Effects of Air Pollution."

In addition, lectures were given at several agricultural field days, and at various training courses organized by the division on topics such as ergonomics, occupational health nursing and occupational psychology.

INDUSTRIAL HYGIENE BRANCH

Officer-in-Charge: Mr A. T. JONES, B.Sc.

Staffing was increased by the appointment of one scientific officer for industrial hygiene activities and two to carry out investigations on behalf of the Workers' Compensation (Dust Diseases) Board, two technical officers (Scientific) and one technical officer.

In the areas of toxicology, industrial hygiene, agricultural health, hospital safety, noise, ergonomics, the use and evaluation of personal protective equipment, and certain consumer products, many problems have been investigated.

Investigations worthy of note are as follows.

(A) INDUSTRIAL HYGIENE AND TOXICOLOGY

(1) Exposure to Acrylamide

The health of two workers was adversely affected by acrylamide, a neurotoxin; exposure was apparently due to free acrylamide in the polymer which, in different batches, ranged from nil to 2.9 per cent weight for weight. Breathing zone air concentrations were measured on four separate days at all stages of handling; the respective range of results were: 0.5-2.3: 1.5; 0.2-0.3, and 0.4-2.7 milligrammes per cubic metre.

The recommended maximum allowable concentration is 0.3 milligrammes per cubic metre of air.

As a result of process modifications and rearrangement of the local exhaust ventilation, the range of acrylamide in air concentrations was reduced to 0.2-0.3 milligrammes per cubic metre. Further process modifications are to be made; in the meanwhile complete protective clothing is worn.

(2) Methane from Garbage Dumps

Investigations were made into the evolution of methane gas from decaying garbage and the contamination of buildings constructed on dumps which were previously materials brickyard quarries. At one location, a materials haulage tunnel, connected to the surface by a shaft, drew by chimney effect these decay gases into the lower basement area. Because of odour complaints, gases from the shaft had been ducted to the outside atmosphere. Unfortunately the ducting had deteriorated thus allowing the escape of gases. Methane concentrations in the duct were above the lower explosive limit, and the risk of explosion was pointed out. Recommendations on the need to seal the shaft and the mouth of the tunnel were made.

There have been several previous similar instances; old kiln flues, material tunnels, and other similar openings leading to the surface from disused quarries, should be sealed before garbage filling is commenced.

(3) Asbestos

Asbestos is being used in an increasing variety of products such as P.V.C. gaskets, bonding cements, small insulated moulds and seals of various types. Most of these factories are small and generally unaware of the fibrogenic and potentially carcinogenic properties of asbestos. Additionally a milled asbestos in a finely divided dusty form is often used. Mixing procedures are often crude and performed without the benefit of enclosure or local exhaust ventilation. Fortunately in most processes, handling is intermittent, being on a batch basis.

A survey has been conducted of some 27 factories and dust levels assessed. Average concentrations ranged from 0.25 to 3.0 fibres per millilitre of air. The newly recommended standard, of the National Health and Medical Research Council, is 4.0 fibres per millilitre.

Although the average concentrations were generally less than the recommended limits, control measures were asked for in a number of cases because of short period higher levels.

(4) Carbon Monoxide in Automatic Car Wash Plants

These installations consist of a tunnel containing the washing equipment through which cars move on a conveyor, usually with the motor running. At the drying end, a large fan draws air from inside the tunnel. Complaints of frequent headaches from employees attaching cars to the conveyor outside the tunnel led to the assessment of the carbon monoxide exposures in all plants in the Sydney metropolitan area. Employees usually working for long periods inside the tunnel did not complain of headaches.

Concentrations inside the tunnel varied according to the amount of natural ventilation. The average concentrations of carbon monoxide (p.p.m.) were:

Position					Plant 1	Plant 2	Plant 3	Plant 4	Plant 5	Plant 6
Outside tunnel	..	..	..	..	100	30	20	50	50	10
Inside tunnel	..	..	..	..	150	110	25	60	60	50

Advice was given on the provision of additional ventilation.

The carboxy-haemoglobin levels of certain employees working inside tunnels are being determined.

#### **(5) Table Mounted Charcoal Cookers**

As a result of an enquiry from a householder, an investigation was made into the possible carbon monoxide exposures from the use of charcoal burning cookers. Such cookers are often used at extended private dinner parties and are placed on a dining table.

With a unit set up, as used in a dining-room, carbon monoxide concentrations of between 50 and 200 parts per million were recorded in positions equivalent to people seated at a table. Directly above the flue of the cooker a concentration of 5,000 parts per million was recorded. These could be a health hazard if such cookers are used in an unventilated or poorly ventilated room.

Modifications were suggested to improve the burning efficiency so as to reduce the carbon monoxide output. It was also recommended that operating instructions state that the air supply should not be restricted in order to conserve fuel, and that rooms should not be closed up.

Details of the investigation were forwarded to the Consumer Affairs Bureau.

#### **(6) Cotton Dust Exposures in Spinning Mills**

As a follow up to previous surveys of cotton processing plants up to the spinning stage, investigations into cotton dust exposure in spinning mills were conducted. The one second forced expiratory volumes (FEV<sub>1</sub>) of employees were recorded before and after exposure.

Dust levels (total dust without sieving) ranged from 0.6 to 4.5 milligrammes per cubic metre of air in eight mills. A standard of 1.0 milligrammes cotton dust per cubic metre of air has been recommended by the National Health and Medical Research Council; however, research workers in Great Britain have suggested an exposure standard for spinning mills of 2.5 milligrammes per cubic metre. Our FEV<sub>1</sub> results of operators showed a significant fall at exposures less than 2.5 milligrammes per cubic metre, indicating that under local conditions a standard of 1.0 milligrammes per cubic metre should prevail. In the light of recent information, it may be that standards, based on respirable size dust, will have to be considered in the future.

Recommendations have been made for medical surveys to ascertain if byssinosis occurs and, if so, at what level of dustiness.

#### **(7) Enzymes in Cleaning Products**

The early manufacture of cleaning products containing protease enzymes resulted in a number of cases of respiratory sensitivity, particularly in one plant where the enzyme used was in a finely divided powder form. There was considerable industrial dispute.

Analytical procedures, based on a maximum exposure standard of 1 microgramme of enzyme per cubic metre, were provisionally adopted by industry. In the light of local and overseas experience, this was later altered to 0.33 milligrammes, or 3 glycine units, per cubic metre of air.

In order to reduce occupational exposures, the physical form of the enzyme used was changed to a comparatively dustfree form such as a prilled material. Lower enzyme in air concentrations, conforming to the above standard, resulted partly from this change, the installation of effective local exhaust ventilation and partly because of process enclosure. Production at one plant is now proceeding satisfactorily.

A further development has been the incorporation of enzymes in drain and grease trap cleansers. All those examined were of a dry dusty type, likely to produce hazards to both the formulator and the user. Action was taken to ensure these were changed to non-dusty formulations and all samples subsequently examined were acceptable. A prohibition on the formulation of dusty enzyme products has been recommended.

#### **(8) Activities on Behalf of the Workers' Compensation (Dust Diseases) Board**

Apart from training the two scientific officers earlier referred to in dust-sampling, instrumentation and counting techniques, investigations were carried out to determine the exposures of applicants for compensation in the silica brick industry, in foundries, in certain factories making steel products, and during asbestos and rock milling. It is intended to carry out a detailed survey into the exposures of contractors in city building undertakings.

#### **(9) Dust Exposures at certain Construction Sites of the Metropolitan Water, Sewerage, and Drainage Board**

Research continued on the development of water attachments for pneumatic picks used in excavation work. Preliminary work had shown that two attachments, designated marks 3 and 4, were capable of reducing dust levels in sandstone excavations by more than 95 per cent. The mark 4 attachment was slightly more efficient than the mark 3 and had the advantage of requiring less water.

Many measurements were made to ascertain the minimum amount of water required for effective dust suppression and the control of water flow by valves. The water requirement of the mark 4 attachment has been reduced by approximately 50 per cent. Both attachments are being widely and successfully used by the Board; efforts are being made to extend their use to contractors. Where attachments were either not or ineffectively used, dust concentration ranged from 250 to 3,000 particles per cubic centimetre, whereas where properly used, concentrations were virtually always below 200.

Work was started on measuring dust concentrations by using recently acquired gravimetric sampling instruments of several types; these are now coming into use on a world basis and, except for asbestos, may be the most appropriate means of measuring pneumoconiosis producing dust exposures. Most of these activities were concerned with the functioning and location of the instruments in relation to pick operators.

## **(B) AGRICULTURAL HEALTH**

### **(1) Blood Cholinesterase Enzyme Levels in Surveys**

A number of investigations of exposure to organic phosphate, carbamate and thiocarbamate pesticides by means of blood cholinesterase levels, were undertaken in various parts of the State. These included the pesticide formulation industry, orchards, market gardens, cotton growing, surveys of employees of the Board of Tick Control and certain local government employees. Of some 400 tests, very few low levels indicative of excessive exposure were found. Two of these, reported below, were due to new organic phosphate weedicides.

### **(2) Poisoning by Thiocarbamate Weedicides**

The use of carbamate insecticides has rarely caused significant cholinesterase inhibition, except in circumstances of gross overexposure. Nevertheless, it appears that certain thiocarbamates may be potent inhibitors of the blood cholinesterase enzyme.

Two employees in a formulating plant processed tillan (R) and orpram (R) over a two-week period. One complained of cholinergic symptoms; leaking valves could have caused skin contact. On examination, their whole blood cholinesterase levels respectively were 45 and 55 per cent of normal values. Both men ceased work with these compounds. After his cholinesterase level had returned to normal, one employee cleaned the plant, processing being completed for the time being. He again reacted with a lowered red cell and plasma cholinesterase, this time thought to be due to the residue in the plant. No further processing was done and cholinesterase values returned to normal after several weeks.

### **(3) Teratogenic Properties of 2.4.5.T Weedicide**

Following the publication of a 1969 report overseas of investigations into the toxicology of 2.4.5.T, and particularly its alleged teratogenic effects, concern was expressed locally as to the possible hazards associated with its processing and use; accordingly, the National Health and Medical Research Council recommended that women of child bearing age should not be employed on processing work. Surveys were made of local processing plants to ensure that this recommendation was observed.

It was subsequently published that the teratogenic effects were probably due to an impurity "Dioxin", of which twenty-seven parts per million were present in the material used in toxicological testing. The material used for processing in local factories, and overseas, contains only about one part per million.

In spite of the difference in levels of this impurity, the employment restriction on women of child bearing age has been maintained together with limitations on its use near water supplies and in public areas. At this stage total usage prohibition is not recommended.

## **(C) ERGONOMICS**

### **(1) Courses**

A number of short courses were given at the division and in factories to design, methods and production engineers and to selected supervisors. Ergonomically designed machines have resulted in improvements in production, increased operator comfort and a reduction in work demands on the operators. Ten factory inspectors attended a one-day orientation course on work physiology.

### **(2) Survey work and investigations**

(a) The ergonomic aspects of a very wide range of manufacturing processes was thoroughly assessed in one large Sydney factory and many deficiencies found. Recommendations were made to control heat, to improve ventilation and air movements, to modify the design of certain hand and machine tools so as to reduce strain in addition to advising on ergonomic methods of materials handling.

(b) Numerous complaints of inadequate, or unsuitable, lighting were investigated. In the design of many buildings the fundamental principles of artificial illumination are often not applied; the subsequent correction of defects is often unnecessarily expensive. The majority of problems were caused either by flush mounted or recessed lighting fittings, or, in large offices, exposed fluorescent tubes giving an uneven light.

In a large paper mill a nighttime lighting survey was made. In order to obtain directional light for paper inspection, operators extinguished lights directly above the work. Because the adjacent lights had been wired to the same switch, only the far row of lights was left on. The latter, although at the correct angle for inspection, gave only 1 foot candle at the paper. Experiments were made with moveable lights and the best lighting determined.

(c) Three types of self contained breathing apparatus, designed for use in mine rescue work, were tested under simulated working conditions of four temperatures ranging from 30° to 41° C and at high humidity. A total of 128 tests were carried out using a standard work cycle. There were no significant performance differences when the criteria used were either the length of time the subject could wear them before his body temperature reached approximately 38·8° C or, alternatively, when he was unable to continue the test.

(d) Twelve commonly available chain saws were tested. The physiological cost of carrying the large saws was 3·5 Kcal min<sup>-1</sup> compared with 2·9 Kcal min<sup>-1</sup> for the smaller ones; the respective averages for the two types were 3·5 and 3·2. Although the anti-vibration handles greatly reduced the jerk and acceleration there was no significant reduction in amplitude. The saws with anti-vibration handles were less tiring to use than the others.

(e) A survey of 500 cases of industrial tenosynovitis has been finalized. It would seem that some persons are pre-disposed to this common disease and that stresses at work, or at home, often result in working with tensed muscles. Inadequate or wrong training methods, in addition to incorrect, or excessive, movements of the fingers, hands, and arms are also precipitating causes. Unfortunately the design of many workplaces and hand tools leaves much to be desired.

(f) Thermal discomfort. A pamphlet, *Heat and Comfort in Office and Factory*, based on the results of a six-year survey on comfort conditions and investigations into a large number of complaints, has been written. This should result in useful guidelines to the designers of buildings on ventilation, air movement, and temperature control.

The branch has investigated a number of complaints of thermal discomfort in buildings erected by speculative builders for use as factories. These are often unsuitable because of the lack of ventilation and high levels of heat from the roof and transparent skylights. The design of these buildings is under the control of local government authorities, to whose attention the problem will be drawn.

(g) An initial survey of the design of controls and seating of small tractors has shown certain faults in design; however, a small sample of users who were questioned, from an ergonomic viewpoint, expressed satisfaction with their own units. The survey is to be continued.

(h) Data relating to certain types of visual displays on the ergonomic design of industrial dials, controls, their location and arrangement has been collated and will be published.

Certain visual displays and controls on domestic appliances are deteriorating with the increase in plastic sophisticated mouldings. This will be brought to the attention of manufacturers and consumers.

**(D) EVALUATION OF CERTAIN INDUSTRIAL PERSONAL PROTECTIVE DEVICES AND CONSUMER ITEMS OF INTEREST TO PUBLIC HEALTH AUTHORITIES. CALIBRATION FACILITIES**

The following table shows the type and results of items tested in 1970.

Type of Item	Number Tested	Number Satisfactory to SAA Standard
Half facepiece respirators .. .. .	8	8
Dust cartridges .. .. .	18	16
Chemical cartridges .. .. .	46	40
Combined dust-chemical cartridges .. .. .	42	36
Full facepiece respirators .. .. .	9	9
Chemical canisters .. .. .	43	30
Air supplied respirators and hoods .. .. .	7	5
Self-contained breathing apparatus .. .. .	5	5
Air filters and purifiers .. .. .	2	2
Safety helmets (sets) .. .. .	22	14
Safety spectacles (pairs) .. .. .	340	181
Face shields and goggles (pairs) .. .. .	165	114
Welding shields and goggles .. .. .	23	17
Soaps and cleaners .. .. .	4	..
Detector tubes (types) .. .. .	6	..
Flooring and floor finishes .. .. .	63	..
Shoe materials (soles and heels) .. .. .	10	..
Textile samples for flammability (experimental only) .. .. .	76	..
Totals .. .. .	889	477

During the year the laboratory commenced testing different types of flooring under wet and dry conditions, shoe materials for soles and heels, a number of floor finishes, in addition to experimental work on the flammability of textiles. The aim of the latter is to endeavour, in co-operation with CSIRO, and the Standards Association of Australia, to establish suitable standards to enable the comparative, and reproducible, rating of flammability of textiles.

### **(1) Protective Equipment**

A major trend has been the large increase in a wide range of eye protectors submitted for testing and approval. A considerable proportion were found unsatisfactory due either to their failure to pass the stringent optical requirements or the impact resistance test.

An increase in staff will enable the retesting of certain items approved some years earlier as a check on quality control. It is hoped to complete the construction of a sodium chloride particulate cloud apparatus for dust respirators and an oscilloscope, and load cell, for the shock absorption test of safety helmets.

### **(2) Slipperiness of Floors and Shoes**

As these are the major causes of accidents in departmental hospitals, considerable experimental work has been undertaken in an endeavour to considerably reduce the frequency of slipping.

In testing, the dynamic coefficient of friction between a variety of floor surfaces and shoe sole and heel materials, is being measured as an assessment of their combined "slipperiness". To date sixty-three floor surfaces and finishes, and a smaller number of shoe materials have been evaluated; several "on the spot" tests have been made on the floors of hospitals and factories.

Advice has been given on the best means of alleviating hazardous floor conditions in areas such as hospital kitchens, and also on the most satisfactory types of shoes to be worn. Two reports on the work to date have been forwarded to the Department's Central Head Office Safety Committee.

### **(3) Calibration**

The calibration facilities of wind tunnel, spirometer and gas chamber, have been widely used. For example, all airflow measuring equipment has been recalibrated, including anemometers, pitots, flowmeters of sampling pumps, and flowrators on gravimetric dust sampling instruments. Other authorities, such as the City Council of Sydney, and the Departments of Labour and Industry and Mines have submitted equipment.

The gas-chamber has proved invaluable for the evaluation of gas and vapour analytical techniques, the checking and calibration of detector tubes and as a primary test for respirator fit and performance.

## **(E) NOISE**

The appointment of additional staff has enabled an increase in field and laboratory evaluations of alleged excessive industrial and community exposures. It has also allowed, inter alia, some work to be done related to the planning of industrial sites, the location of proposed roads, the investigation of traffic noises, assistance with certain police problems and a follow up of earlier given recommendations.

Statistics show that noise induced deafness is now one of the greatest single factors in Workers' Compensation. There is increasing evidence that many sections of the community, in addition to certain governmental and semi-governmental authorities, are now much more aware of the discomfort and nuisance value of uncontrolled noise.

Activities of specific interest have been:

### **(a) Design and Planning**

Requests for assessment and advice on possible noise nuisances, and interference with communication in schools and buildings, have been received from planning authorities, developers, and manufacturers of certain types of equipment.

Research was carried out for the Department of Main Roads to assist in determining the relative merits of alternate routes for an expressway to prevent the risk of noise interference with school lessons. A series of measurements were taken in relation to existing expressways at various traffic loads, and simultaneous measurements at different sites with identical vehicular conditions were also made. The effects of embankments were assessed and measurements of both normal expressway traffic and a "Standard-Loud" vehicle made. This work indicated the most suitable of the alternate routes from the noise nuisance point of view.

The Noise Section has given advice on several other possible types of community noise exposures as a result of proposals to establish industry in country areas. Frequently low background noise levels can cause serious problems. For example despite the fact that a new industry, established to process lucerne, was of major economic community importance, there were many complaints to the local authority as a result of noise levels more than 20 dBA in excess of background.

Much more attention, than hitherto, must be given to noise in planning and especially during the associated early negotiations with industry.

### **(b) Earth Moving Equipment, Tractors, Prime Movers, Road Tankers, Excavating Machinery**

Investigations have been carried out, and advice given to suppliers and purchasers, to assess community noise levels resulting from the use of tractors, etc. and to reduce occupational exposures by muffling, the incorporation of certain design changes, body work modifications, and by the use of ear protection by drivers.

There is a need for further considerable work on many aspects of this complicated problem, including the possible influence of reflecting surfaces and the difficulty, in practice, of controlling operating techniques.

Some success was achieved with mobile enclosures for air compressors; in one case there was a 15 dBA reduction in overall noise level. With pneumatic picks, exhaust silencers have produced a worthwhile reduction of 6 dBA. However, difficulties have been experienced by silencers blocking with oil and water from the machines and it seems that the most successful control will come from total redesign.

### **(c) Time Exposure Patterns**

With respect to hearing conservation programmes, in order to increase the accuracy of assessment programmes many detailed analyses have been made of Sound Level "A" as a function of time.

## **(F) DEPARTMENTAL SAFETY PROGRAMME**

This programme is now progressing satisfactorily, a total of twenty safety committees having been established. The safety officer now visits at regular intervals all hospitals not only to investigate certain types of accidents but also to advise generally.

A standardized accident reporting and recording system has been introduced. For the period of June, 1969 to May, 1970, the accident frequency and severity rates were respectively 54.1 per 1,000,000 and 0.53 per 1,000 man hours worked.

A number of short training courses for many of the members of hospital safety committees have been arranged.

## **MEDICAL BRANCH**

*Officer-in-Charge:* Dr E. O. LONGLEY, M.B., B.S., D.I.H.

Because of an increasing advisory role to industry, a greater acceptance of occupational medicine as a speciality, and involvement in committees, it has not been possible to visit as many factories as last year.

### **MEDICAL EXAMINATIONS AND OCCUPATIONAL DISEASES**

More than 1,400 examinations, and consultations, were carried out; in general these were to determine the presence of specific occupational diseases. About 50 per cent were performed for the Workers' Compensation (Dust Diseases) Board. Whenever possible, the latter examinations were accompanied by pulmonary function tests. Of the total number examined, 102 new cases of industrial pulmonary dust diseases were detected, of which 86 were silicosis, 10 asbestosis, 2 byssinosis, 1 aluminosis, 1 emery pneumoconiosis, 1 talcosis, and 1 mixed silicosis and asbestosis.

A case of possible pseudotuberculosis, lymphadenitis, due to *Corynebacterium ovis*, was investigated. Unfortunately the diagnosis could not be confirmed but the history of handling sheep and a previous episode of symptoms were, in themselves, very suggestive. The patient is being followed up in case of recurrence.

Following the attendance at the division of two workers with symptoms suggestive of acrylamide poisoning, a joint investigation was undertaken with the Industrial Hygiene Branch. One employee, who had only worked in the area for 1 month, complained of peeling skin of his hands followed by paraesthesia in the fingers and weakness of the right hand, wrist, and arm, two episodes of urinary incontinence, cramps and weakness of the right leg; subjective visual disturbance of the right eye; hyperaesthesia of the facial skin, especially after shaving, and slowness of speech. Neurological consultation with sensory and motor nerve conduction studies confirmed the presence of a peripheral neuropathy. The electrical studies returned to normal limits approximately four months after the onset of symptoms. The second employee only complained of numbness of several finger tips of one hand which quickly disappeared on removal from exposure.

### **PROVISION OF A MEDICAL SERVICE FOR THE STATE DOCKYARD**

In mid-1970 an approach was made by the management of the Newcastle Dockyard to the division to provide a full-time medical service. Following an inspection of the dockyard, and an evaluation of the number and type of accident and medical hazards, such an appointment was recommended to the Public Service Board. Dr G. W. Danger commenced duties towards the end of the year.

## GROUP INDUSTRIAL CLINICS

The branch is represented on a committee formed by the Productivity Groups Advisory Council of New South Wales to enquire into the feasibility of establishing a group industrial medical clinic. This committee hopes to be able to make recommendations relating to the selection of a suitable area for the trial survey of needs and potential.

## REHABILITATION

Several members of the division gave evidence at the recent Enquiry into Industrial Rehabilitation, conducted by Judge Conybeare; recommendations, relating to such aspects as the need for industrial hygiene evaluations, ergonomics, job analysis, correct manual handling techniques and occupational psychology were made, including possible involvement in any scheme which might be recommended to the Government.

## PATHOLOGY LABORATORY

Following a recommendation by the Occupational Health Committee, of the National Health and Medical Research Council, to "phase out", as far as practical, stipple cell investigations in lead workers, the number of such counts dropped to 2,722.

In addition to his laboratory activities, the officer-in-charge, of the laboratory, visited a number of industries to carry out tests and instructed fourteen laboratory technicians in special implant medical test techniques.

A number of additional pathology procedures, including urinary delta aminolaevulinic acid are now being routinely used.

## OCCUPATIONAL HEALTH NURSING

Visits by the adviser are the best method to guide nurses working in industry, including the need for them to develop preventive programmes.

Four educational sessions for practising occupational health nurses were organized. The first was an inspection of our new Laboratories and facilities; the themes for the other 3 were "low back pain", "mental health and work" and "medical emergencies at work". Attendances respectively totalled 71, 63, 25, and 102.

Students taking the post-graduate Occupational Health Nursing Certificate Course spent one week at the division. Other student/visitors included nurses from the N.S.W. Bush Nursing Association and the University Nurse Training Scheme.

Surveys were carried out to establish the basic physical requirements for industrial health centres, the present day ratios of the number of nurses and medical officers to the number of employees and the opinions of nurses regarding future educational programmes.

## OCCUPATIONAL PSYCHOLOGY

A divisional policy was formulated and announced; in the field of mental health in industry this involves certain activities related to primary, secondary, and tertiary prevention. It was agreed that although the Department's Division of Psychiatric Services should be responsible for all clinical work in secondary prevention, the branch will continue to train industrial counsellors and provide an industrial psychology consultation service to the former, thus forming an effective liaison between the industrial and hospital situations.

Twenty consultations were given at the branch's counselling clinic. Mr J. Allen was co-opted as a member of the Callan Park Hospital community team which will undertake the mental health and psychiatric aspects of a comprehensive service to local industry; this project was established by the Royal South Sydney Hospital and may be the first major mental health approach to industry. He also acted as Consultant to the rehabilitation programme at Gladesville Hospital.

It was decided to organize, and hold seminars for safety officers and to choose topics which, in general, would have a major psychological component. Two successful meetings were held—namely on "Understanding Human Factors In Industrial Accidents" and "Accident Proneness". The attendances were respectively 100 and 140.

A study in a large New South Wales company was commenced; this involves enquiry into the format of the proposed top management re-organization, clarification of the roles of managers and supervisors and their training in communications.

## SPORTS MEDICINE

The division has continued to give *ad hoc* advice on various aspects of sports medicine, including repetition of internal training, the value of weight training, diet both in training and before competition, heat exhaustion, cramps and accumulative fatigue.

## HUMAN KINETICS

Almost 200 lecture demonstrations, to approximately 4,100 employees were given; in addition 40 work study surveys were performed. In 1971 it is hoped to concentrate more on supervisors than on individuals or groups of workers.

Unfortunately, to date, efforts to interest management in the value of physical conditioning in industry have been unsuccessful. However, it is hoped that physical conditioning of nurses at a major hospital will be commenced soon.

From the branch's investigations it is clear that significant manual handling problems exist in almost every industry. Some of the specific problems investigated included the need for timber loading ramps, the redesign of square set stage level metalliferous mines using timber slope mining procedures, the use of mechanical wiring handling devices in certain electrical installations, the use of work platforms by linesmen, the loading of paper bales and gas cylinders onto trucks, the methods of placing slats during timber weathering procedures and the handling of accident victims, disabled persons and hospital patients.

## LIFE JACKETS

On behalf of the Maritime Services Board tests were carried out to determine the effectiveness of various types of life-jacket. It was found that some of the available jackets would cause an unconscious person to float face down and partially submerged.

## ALCOHOL AND ROAD TRAFFIC ACCIDENTS

Dr R. E. Simson conducted the Fourth Breathanalysis Training Course for officers of the N.S.W. Police Department, acting as lecturer, demonstrator, and co-examiner. On matters relating to the interpretation of blood alcohol levels in defendants, he also represented the Crown as an expert witness on six occasions.

## PHYSICAL FITNESS

Tests to determine the physical fitness of schoolboys, which were commenced in 1966, have been completed. The preliminary results suggested that bicycle ergometric measurements of boys commencing their secondary education can be used to predict their physical fitness five years later.

## AIR POLLUTION CONTROL BRANCH

*Principal Engineer:* Mr R. P. MURPHY, B.E., A.S.T.C., M.I.E. Aust., A.M.Inst.F.

"Pollution" and "Environment" became topics of great public interest during the year. This imposed heavy loads on officers in investigating a flood of complaints from an aroused public either to the Minister or directly to the branch. For a time it appeared that emotions were being aroused by the overstatements of some authors to a level where those attempting to control air pollution were finding their efforts being dissipated on the investigation of trivia. However the position was contained by some staff additions and, consequently, engineers and chemists of the branch have been able to continue their efforts towards the solving of problems from major sources.

## TWENTY-FOUR HOUR COMPLAINT SERVICE

Following an incident in July, when an escape of hydrogen sulphide gas from an oil refinery in the Parramatta area caused discomfort to a large number of people between Parramatta and the eastern seaboard, a telephone complaint service commenced to operate on a continuous basis early in August. A total of 2,015 complaints had been received by the end of the year. All of these have either been investigated by officers of the branch or referred to other responsible authorities such as local government councils or the Department of Motor Transport.

This service has been found to be useful in the tracing of sources of air pollution and also other sources of pollution thereby assisting other authorities.

## STAFF

The staff was increased to thirty-two officers and approval given to be increased to thirty-seven. A technical editor and information officer was appointed to deal with the preparation and editing of correspondence and reports and also with the public relations aspects of the complaint service. To assist in the operation of the complaint service and monitoring system, two clerical assistants have been appointed. The after hours complaint service is operated on the basis of "rostered" and "on call" officers. Approval has been given for the appointment of five technical officers to assist field engineers.

## INSPECTIONS AND SURVEYS

A total of 2,965 inspections of factory premises were made, including 647 investigations into complaints. The scientific staff carried out 230 tests at 42 industrial premises to determine the concentration and quantity of various contaminants being emitted to atmosphere. Surveys were carried out around 14 different sources to determine the concentration of a variety of contaminants.

Time lapse camera surveys were made almost continuously during the year not only in city areas but also in Bathurst and Dubbo. These are most useful in demonstrating to companies the frequency with which their visible emissions exceed the statutory limits and have almost always resulted in substantial improvements.

The survey into the fluorine content in the vegetation surrounding a number of works emitting fluorine compounds was continued. This has shown a progressive build up of fluorine in the vegetation surrounding an aluminium smelter and the Department is now examining the statutory limit for compounds of this element with a view to its reduction.

A study of air pollution as a factor in the deterioration and death of Norfolk Island Pines along the N.S.W. Coast has been commenced. Conclusions have not yet been reached and the setting up of a working party, to include officers of the branch, biologists and plant pathologists of other government authorities, may be necessary to determine the cause.

## AIR POLLUTION ADVISORY COMMITTEE

As in the past much of the work of the branch was concerned with the preparation of material for submission to meetings of the Committee. Developments towards the control of air pollution in various categories of industry were discussed in the Air Pollution Advisory Committee report presented to Parliament in October.

## EMISSIONS FROM MOTOR VEHICLES

Investigations into the control of emissions from motor vehicles were continued. Pollutants emitted from motor vehicles include hydrocarbons, carbon monoxide, nitrogen oxides, sulphur oxide and lead compounds, but the largest constituent is carbon monoxide. To check levels of the latter in the atmosphere, a continuous carbon monoxide monitor was installed in the Queen Victoria Building in the central city area in February. Results of the first year's continuous monitoring showed that carbon monoxide was above 20 parts per million during 8-hour periods for 10 per cent of the year. During June concentrations of 20 p.p.m. or more were maintained for 20·7 per cent of the time. The average concentrations recorded were similar to those reported for several major United States, Japanese, and English cities. The above results are viewed with concern and confirm the need for action to control such emissions. Some States in the U.S.A. and Ontario Province, Canada, have decided to set an air quality standard for carbon monoxide of 20 p.p.m. or less for average 8-hour samples.

Investigation of the change in emissions by the conversion of a petrol engined vehicle to liquefied petroleum gas was carried out on a car submitted by the National Road Motorists Association. Other vehicles fitted with emission control units were also tested in order to assess whether any reduction in emissions occurred. It was found that conversion to L.P.G. made a substantial reduction in emissions, but the devices did not meet the claims made by their inventors.

Legislation is at present being prepared to control emissions from motor vehicles in N.S.W. The Australian Transport Advisory Council which discussed its proposals with the Department and the motor industry, this year published an Australian rule for emissions from new vehicles. By 1st January, 1972, carbon monoxide from the idling engine of a new vehicle should not exceed 4·5 per cent of the total exhaust gases. By 1st January, 1974, the standard will be more comprehensive, involving both carbon monoxide and hydrocarbons and applying to idling, accelerating, decelerating, and cruising. Cabinet has approved the preparation of a bill to enable controls to be incorporated in the N.S.W. Clean Air Act. The proposed bill will prohibit the operation, or sale, of motor vehicles unless they comply with regulations which will require the installation of devices to lessen the emission of pollutants. Standards will be prescribed of permissible rates of emission of pollutants, and provision will be made for testing of anti-pollution devices.

## MONITORING OF AIR POLLUTION

Monitoring throughout New South Wales was continued in 1970 on an even larger scale than 1969. Tests were made of concentrations of atmospheric contaminants such as smoke, sulphur dioxide, deposited dust, suspended dust, lead, copper, iron, carbon monoxide, fluoride, and ozone.

Briefly, smoke density and dust deposition decreased at the majority of the monitoring sites. The only increase in sulphur dioxide levels to occur was at Bolton Street, Newcastle. However, high values of carbon monoxide concentrations were recorded, at levels comparable to concentrations experienced in some large overseas cities. Comparisons of Sydney's levels of carbon monoxide with other cities are shown in table 1.

Fluoride and ozone were also recorded in sufficient concentrations to cause concern.

Details of the monitoring of the various contaminants are discussed below.

#### (a) Smoke Densities

The results from thirteen sites of the daily measurement of smoke density, by the standard daily smoke and sulphur dioxide sampling apparatus are shown in table 2; figure 1 gives the variations in smoke density at three sites in Sydney. The industrial site continues to improve, and an improvement was also shown at the commercial site in the central city area; the latter had continually deteriorated since 1966. The residential site remains the same as in 1969.

Continuous automatic smoke monitors, which record smoke in the atmosphere every two hours, are in service at fifteen sites. These results are shown in tables 3, 4, and 5. The only annual average value to increase compared with 1969, was at George Street North, in the city. The highest annual average value of 1.3 coefficient of haze (C.O.H.) units per 1,000 linear feet was recorded at Lithgow Town Hall; this value is partly due to the use of coal for domestic heating.

Table 4 shows the number of days and hours in each month when smoke density was equal to or greater than 2 and 5 C.O.H. units. A deterioration in these incidents was experienced at George Street, Sydney, Market Street, Newcastle, and Lithgow Town Hall, and table 5 shows the trends of these three sites since 1967.

#### (b) Sulphur Dioxide

Daily recordings of sulphur dioxide concentrations using the standard daily smoke and sulphur dioxide sampling apparatus, were carried out at thirteen sites; the results are shown in table 6. Variations in sulphur dioxide concentrations at three sites in Sydney are shown in figure 2. There was a decrease in the annual average concentration at the commercial and industrial sites, and a slight increase (0.2 parts per 100 million) at the residential site. At Bolton Street, Newcastle, an increase of 1.4 p.p.h.m. occurred.

Measurements of sulphur dioxide in the atmosphere in the Matraville area were continued, using a continuous automatic monitor, and the results are shown in figure 3. This site continues to show an improvement.

#### (c) Dust Deposition

The method of analysing dust deposition gauges was modified in 1970; only insoluble solids, ash and combustible material are now reported. Annual average dust deposition measurements are shown in table 7 and figure 4.

In Sydney the annual average dust depositions decreased by 23 per cent, i.e. from 14.4 tons per square mile per month in 1969 to 11.1 tons per square mile per month in 1970. Dust deposition decreased at many sites, including Martin Place; nevertheless the site is adversely affected by building activity and deposition is still high. Decreases in Newcastle and Wollongong of 10 per cent and 3 per cent respectively were experienced.

#### (d) Carbon Monoxide

A continuous recording carbon monoxide monitor was installed at the Queen Victoria Building; this sampling point is situated in a busy street and about 12 ft above street level. Results of these measurements appear in tables 8 and 9. Monthly average concentrations increased from 8.6 p.p.m. in February to a maximum of 13.4 p.p.m. in June and decreased again to 8.1 p.p.m. in January 1971.

Table 8 shows the maximum carbon monoxide concentrations measured during 1970, including and excluding the Captain Cook Bi-Centenary Celebrations. The abnormally high number of automobiles in the city during these celebrations produced concentrations exceeding all others recorded throughout the year. During the petrol strike in July the reverse situation was experienced. As a result of the reduced number of automobiles in the city, decreases in carbon monoxide concentrations of up to 40 per cent were recorded; the concentrations were only slightly higher than those normally experienced on any Sunday.

Examination of maximum hourly averages, and peak concentrations, indicates that the maximum concentrations of carbon monoxide are recorded between 8 a.m. and 1 p.m. on week days. American authorities setting ambient air quality standards, base them on 8-hourly average concentrations. Table 9 shows the percentage frequency of carbon monoxide concentrations equal to or greater than 20 p.p.m., 30 p.p.m., and 50 p.p.m., for overlapping 8-hourly sampling periods. The data collected throughout 1970 shows Sydney experiences a high frequency of carbon monoxide in excess of 20 p.p.m.

#### (e) Fluoride

Fluorides, both gaseous and particulate, were monitored for the last four months of 1970 at a site susceptible to fluoride contamination. The average concentration of fluoride, as hydrogen fluoride, was 0.108 p.p.h.m. (0.96  $\mu\text{g}/\text{m}^3$ ); concentrations of this order cause damage to some types of vegetation.

#### (f) Suspended Atmospheric Dust, Lead, Copper, and Iron

A summary of suspended dust, lead, copper, and iron concentrations, from four monitoring stations in the Sydney area and one at Wollongong, from January, 1968 to December, 1970 is shown in table 10.

The average suspended dust concentrations range from 32.5 to 49.6 microgrammes per cubic meter, comparing favourably with overseas cities in which concentrations can range as high as 200 microgrammes per cubic metre. The site at Wollongong experienced an average iron concentration of 3.20 microgrammes per cubic metre which is greater than the Sydney sites; this is due to the steelworks located at Port Kembla.

#### (g) Ozone

Monitoring of atmospheric oxidants was again carried out intermittently. Unlike previous years measurable concentrations of these contaminants were found with increasing frequency particularly towards the close of the year. It is considered that this is a sign that a photo-chemical pollution problem may be developing and continuous monitoring of oxidants will therefore be carried out during 1971.

### URBAN PLANNING

Discussions on the role of air pollution and meteorology in urban planning were held during the year between officers of the Air Pollution Control Branch, the Bureau of Meteorology and the State Planning Authority. As a result the Bureau of Meteorology will obtain wind direction and velocity data at Jervis Bay and Campbelltown prior to proposed industrial and urban development in these two areas.

TABLE 1—CARBON MONOXIDE AND SULPHUR DIOXIDE COMPARISON WITH OVERSEAS CITIES MAXIMUM CONCENTRATIONS

Pollutant	Site	Maximum 8-hourly Average	Maximum Daily Average	Maximum Monthly Average	Maximum Yearly Average	Period of Data
Carbon Monoxide (Parts per million)	Chicago .. ..	39	33	19	14	1962-1967
	San Francisco .. ..	17	14	7	5	1962-1967
	Los Angeles .. ..	32	26	15	11	1962-1967
	Osaka† .. ..	N.A.	14	8	7	1968
	Sydney .. ..	40 (53)*	21 (27)*	13	10	1970
Sulphur Dioxide ( $\mu\text{g}/\text{m}^3$ at 0°C)	Chicago .. ..	2,917	2,259	1,001	515	1962-1967
	San Francisco .. ..	286	229	86	57	1962-1967
	Los Angeles .. ..	372	286	86	57	1962-1967
	London .. ..	N.A.	1,171	597	280	1967-1968
	Osaka .. ..	N.A.	N.A.	349	183	1968
	Sydney .. ..	N.A.	369	172	123	1970

\* Maximum concentrations during Bicentenary celebrations.

† Site located at Environmental Pollution Control Centre, Osaka City.

N.A. Results not available.

TABLE 2—SMOKE DENSITIES—24-HOUR SAMPLES SYDNEY AND NEWCASTLE—1970  
*Coh Units per 1,000 Lin Ft*

Site	•	January	February	March	April	May	June	July	August	September	October	November	December	Yearly Average 1970	Yearly Average 1969
Queen Victoria Building ..	Av. H.D.	1.1 3.1 (24)	1.5 2.3 (14)	1.5 3.5 (23)	1.5 3.4 (27)	1.9 4.5 (2)	2.2 5.4 (1)	1.9 5.5 (18)	1.6 5.8 (15)	1.4 5.5 (12)	1.2 2.4 (24)	0.8 1.5 (2)	0.9 1.4 (8)	1.5 ..	1.7 ..
Redfern Town Hall ..	Av. H.D.	0.8 6.5 (7)	0.8 1.6 (18)	1.0 2.3 (16)	0.8 2.2 (7)	1.2 2.1 (15)	1.7 2.8 (30)	2.0 4.2 (8)	1.6 3.5 (1)	1.2 2.4 (7)	1.3 2.6 (19)	0.6 2.0 (10)	0.6 1.3 (8)	1.1 ..	1.2 ..
Paddington Town Hall ..	Av. H.D.	0.3 0.8 (14)	0.5 1.1 (18)	0.6 1.4 (16)	1.0 2.4 (15)	0.7 1.8 (13)	1.0 2.0 (12)	1.1 2.2 (15)	0.8 1.5 (24)	0.5 1.2 (7)	0.5 1.1 (7)	0.3 1.0 (24)	0.4 0.7 (10)	0.6 ..	0.8 ..
Prince Alfred Park ..	Av. H.D.	0.8 0.9 (9)	1.0 1.9 (3)	1.0 1.8 (4)	0.9 1.9 (24)	1.3 1.8 (15)	1.4 2.4 (22)	1.5 2.7 (15)	1.1 2.2 (13)	0.9 1.9 (7)	1.0 2.0 (7)	0.7 2.8 (27)	0.7 1.1 (10)	1.0 ..	1.4 ..
North Sydney Council ..	Av. H.D.	0.4 0.8 (15)	0.3 0.6 (26)	0.4 0.6 (16)	0.4 0.8 (30)	.. ..	0.9 1.5 (23)	0.7 1.3 (22)	0.8 1.4 (21)	0.5 1.1 (16)	0.5 0.9 (1)	0.4 0.8 (27)	.. ..	0.5 ..	0.5 ..
Botany Town Hall ..	Av. H.D.	0.1 0.4 (27)	0.7 1.7 (4)	0.7 1.1 (18)	0.8 1.3 (24)	0.5 1.0 (19)	.. ..	0.6 1.3 (23)	0.5 1.2 (24)	0.4 0.8 (7)	0.6 1.3 (12)	0.6 1.5 (5)	1.0 2.1 (10)	0.6 ..	.. ..
Lidcombe Hospital ..	Av. H.D.	0.3 0.5 (22)	0.3 0.9 (18)	0.4 0.7 (17)	0.3 0.5 (16)	0.2 0.5 (25)	0.3 0.7 (10)	0.4 0.7 (15)	0.2 0.5 (20)	0.2 0.4 (7)	0.2 0.5 (12)	0.2 0.3 (10)	0.2 0.4 (23)	0.3 ..	.. ..
City Hall, Newcastle ..	Av. H.D.	0.3 1.0 (19)	0.4 1.4 (19)	0.8 2.3 (5)	0.7 2.4 (18)	1.1 3.4 (14)	1.3 2.5 (25)	1.7 3.3 (17)	1.0 3.2 (19)	0.9 3.8 (9)	1.0 3.2 (2)	0.7 2.3 (12)	0.8 1.5 (11)	0.9 ..	1.1 ..
Bolton Street, Newcastle ..	Av. H.D.	0.2 0.8 (24)	0.2 0.7 (21)	0.9 2.6 (5)	0.6 2.1 (25)	1.3 2.5 (14)	2.4 4.1 (25)	2.2 7.7 (10)	0.9 4.3 (21)	1.0 4.5 (15)	1.1 4.8 (15)	1.1 2.3 (13)	1.0 2.1 (19)	1.1 ..	1.0 ..
Mayfield East, Newcastle ..	Av. H.D.	0.7 1.8 (20)	1.4 3.2 (11)	1.4 2.3 (10)	1.1 3.3 (16)	1.2 2.7 (27)	1.2 4.0 (25)	1.3 3.5 (15)	0.6 1.6 (15)	0.6 1.6 (4)	0.7 1.8 (20)	0.8 2.2 (14)	0.9 1.6 (1)	1.0 ..	1.3 ..
Neath ..	Av. H.D.	.. ..	.. ..	.. ..	0.3 0.8 (21)	0.6 1.2 (28)	0.7 1.8 (24)	0.7 1.2 (23)	0.5 1.1 (10)	0.4 1.3 (14)	.. ..	0.4 0.7 (18)	0.3 0.5 (19)	0.5 ..	.. ..
West Cessnock ..	Av. H.D.	.. ..	.. ..	.. ..	0.2 0.3 (25)	0.8 2.0 (27)	1.0 1.9 (10)	0.9 1.8 (14)	0.6 1.1 (3)	0.6 1.5 (24)	.. ..	0.3 1.2 (12)	0.2 0.5 (9)	0.6 ..	.. ..

• AV: Monthly average smoke density—24-hour samples  
HD: Highest 24-hour smoke density recorded during month  
Value in brackets indicate the day of the month on which the highest daily value occurred.

FIGURE 1

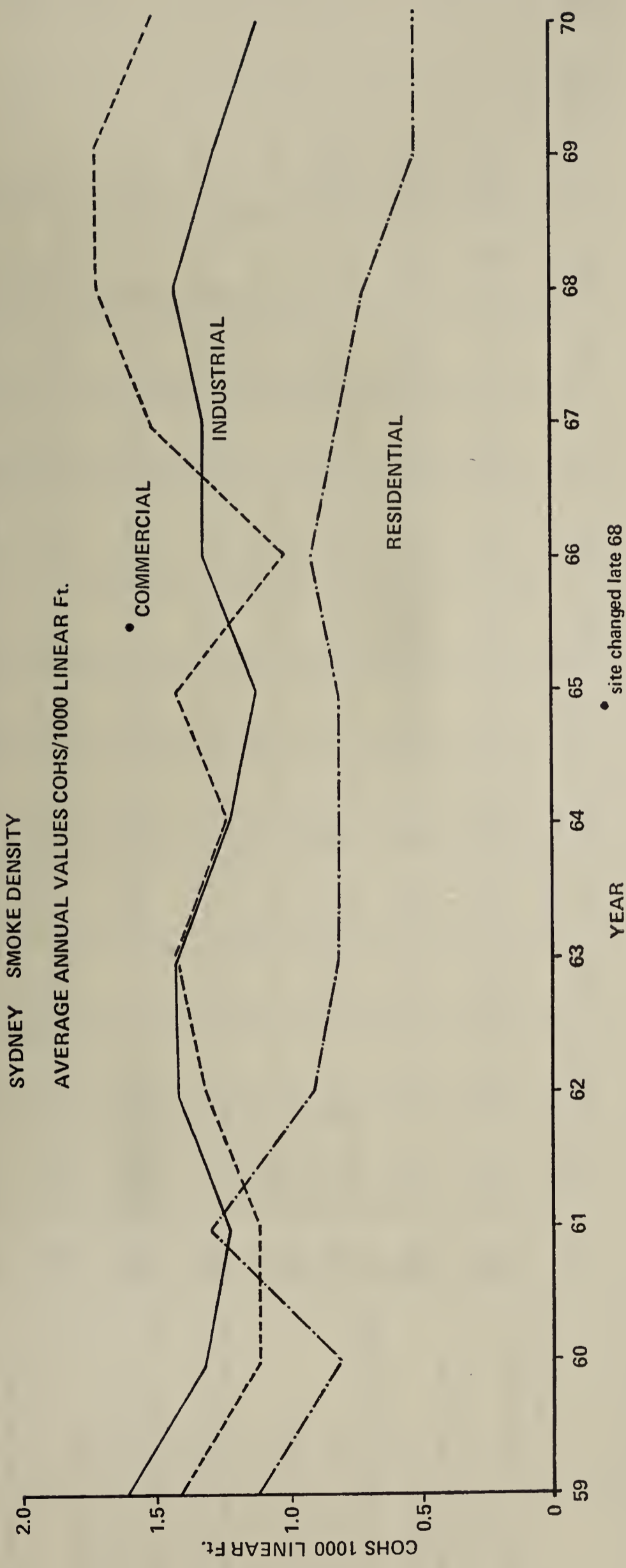


TABLE 3—CONTINUOUS SMOKE MONITOR RESULTS—1970 SMOKE DENSITIES—2-HOUR SAMPLES  
Coh Units Per 1,000 Lin Ft

Site	†	January	February	March	April	May	June	July	August	September	October	November	December	Yearly Average 1970	Yearly Average 1969
George Street North Monitor Station	Av.	0.4	0.5	0.7	0.9	0.8	1.5	1.5	0.9	0.4	0.7	0.5	0.5	0.8	0.6
	H.D.	0.9 (17)	1.0 (14)	1.3 (23)	2.0 (14)	1.6 (28)	2.6 (22)	2.6 (15)	2.0 (20)	0.8 (10)*	1.4 (7)	1.0 (5)	1.0 (12)	..	..
	H.V.	3.4	2.6	3.0	4.0	3.8	4.5	4.0	3.2	2.5	3.5	2.6	2.1	..	..
State Office Block Monitor Station	Av.	0.2	0.4	0.4	0.5	0.7	0.7	0.7	0.4	0.4	0.3	0.3	0.3	0.4	0.5
	H.D.	0.6 (19)	0.8 (19)	1.0 (4)*	1.2 (30)	1.4 (27)	1.3 (23)	1.8 (15)	0.8 (20)	0.7 (14)*	1.0 (21)	0.7 (27)	0.7 (14)	..	..
	H.V.	1.4	2.4	4.8	3.3	2.8	3.6	3.3	2.0	2.2	2.4	2.0	2.0	..	..
Queen Victoria Building Monitor Station	Av.	0.8	1.1	1.0	1.2	1.2	1.4	1.3	1.2	1.1	0.7	0.5	0.4	1.0	1.3
	H.D.	1.3 (27)	3.0 (1)	1.7 (2)	2.0 (13)	2.2 (1)	2.3 (3)	2.4 (24)	1.7 (4)*	1.5 (5)*	1.6 (2)	0.9 (25)	0.6 (14)*	..	..
	H.V.	4.2	12.1	4.5	4.0	4.3	7.3	7.2	2.8	2.6	3.2	1.8	1.5	..	..
Callan Park Monitor Station	Av.	0.3	0.3	0.4	0.5	0.8	1.0	1.3	0.7	0.4	0.4	0.4	0.3	0.6	0.7
	H.D.	0.7 (24)*	1.1 (19)	1.2 (5)	1.1 (13)*	1.8 (25)	2.3 (10)	2.6 (15)	1.2 (20)*	1.3 (7)	1.1 (7)*	0.7 (5)	0.8 (14)	..	..
	H.V.	2.4	2.4	2.4	2.4	3.4	4.5	4.0	3.3	3.3	2.8	2.6	1.7	..	..
Prince Henry Hospital Monitor Station	Av.	0.2	0.3	0.4	0.4	0.5	0.7	0.8	0.4	0.3	0.3	0.2	0.2	0.4	0.4
	H.D.	0.7 (24)	1.1 (19)	1.0 (18)	1.0 (14)	1.1 (25)*	1.7 (25)	1.9 (15)	1.2 (30)*	1.1 (14)	1.2 (2)*	0.8 (10)*	0.4 (12)*	..	..
	H.V.	2.4	3.4	2.8	3.4	3.3	3.5	3.5	3.0	3.0	3.3	2.3	1.6	..	..
Prince of Wales Hospital Monitor Station	Av.	0.1	0.3	0.5	0.4	0.8	0.9	1.2	0.6	0.5	0.4	0.3	0.2	0.5	0.5
	H.D.	0.6 (24)	1.2 (19)	1.7 (5)	0.9 (13)*	1.7 (25)	1.9 (30)	2.6 (15)	1.5 (26)	1.7 (14)	1.7 (2)	0.7 (5)	0.7 (11)	..	..
	H.V.	2.8	3.4	3.5	4.2	4.0	4.0	4.3	4.0	3.7	3.3	2.4	2.3	..	..
Rydalmere Monitor Station	Av.	0.3	0.3	0.3	0.4	0.4	0.7	1.1	0.6	0.5	0.4	0.4	0.3	0.5	0.5
	H.D.	1.2 (19)	0.8 (19)*	0.9 (16)	0.9 (7)*	0.9 (25)	1.7 (15)	1.9 (15)	3.5 (31)	3.0 (14)	1.9 (12)	0.8 (22)*	0.8 (7)*	..	..
	H.V.	2.2	3.4	2.8	2.8	1.8	4.8	3.3	4.8	5.7	3.4	1.8	1.5	..	..
Lidcombe Hospital Monitor Station	Av.	0.2	0.3	0.3	0.3	0.1	0.3	0.5	0.3	0.1	0.3	0.4	0.3	0.3	..
	H.D.	0.5 (27)	0.9 (19)	0.5 (5)*	0.7 (13)	0.4 (4)	1.0 (26)	1.0 (16)	0.9 (14)	0.3 (1)*	1.4 (7)	1.1 (9)	0.8 (14)	..	..
	H.V.	2.2	1.8	1.4	1.8	0.6	2.4	2.8	2.6	0.8	2.4	1.8	1.9	..	..

† AV.—Monthly Average—2-hour samples. HD: Highest daily average for month. HV: Highest two-hourly value for month.  
Value in brackets indicate the day of the month on which the highest daily average occurred.  
Asterisk indicates that the highest daily average occurred on more than one day.

TABLE 3—CONTINUOUS SMOKE MONITOR RESULTS—1970 SMOKE DENSITIES—2-HOUR SAMPLES—continued  
Coh Units Per 1,000 Lin Ft

Site	†	January	February	March	April	May	June	July	August	September	October	November	December	Yearly Average 1970	Yearly Average 1969
Ermington Monitor Station	.. Av. H.D. H.V.	0.3 0.7 (23)* 1.6	0.4 0.8 (1) 1.6	0.4 0.9 (17) 2.4	0.6 1.2 (13) 2.8	0.7 1.6 (25) 2.8	0.7 1.6 (10) 3.4	0.9 1.9 (15) 3.3	0.6 1.3 (4)* 3.3	0.4 1.0 (14) 5.4	0.4 0.8 (7) 2.4	0.3 0.5 (4)* 1.5	0.4 0.9 (14) 2.1	0.5	0.6
Sutherland Monitor Station	.. Av. H.D. H.V.	.. .. ..	0.2 0.8 (4) 2.0	0.2 0.4 (4)* 1.2	.. .. ..	.. .. ..	0.5 1.3 (10) 2.7	0.4 1.0 (15) 2.1	0.3 0.7 (4)* 3.5	0.2 0.7 (14) 1.7	0.3 0.6 (2)* 2.4	0.2 0.5 (9)* 1.3	0.2 0.5 (10) 1.4	0.3	..
Wollongong City Council	.. Av. H.D. H.V.	0.2 0.5 (27) 1.2	0.3 0.8 (19) 1.8	0.3 0.5 (5)* 1.3	0.4 0.8 (16) 2.8	0.3 0.8 (13) 1.8	0.4 1.0 (26) 4.7	0.4 1.2 (8) 2.9	0.3 0.8 (21) 1.4	0.3 0.7 (7) 1.4	0.4 0.7 (5)* 1.8	0.3 0.6 (12) 1.5	0.3 0.7 (1) 1.1	0.3	0.3
Port Kembla (Fire Station)	.. Av. H.D. H.V.	0.3 1.4 (16) 5.1	0.8 2.4 (5) 5.7	0.4 0.8 (10)* 2.0	0.7 2.5 (22) 5.1	0.4 2.0 (14) 3.3	0.5 1.5 (26) 4.0	0.6 1.2 (15)* 2.8	0.7 3.2 (24) 9.2	0.5 1.5 (8) 3.7	0.5 1.4 (19)* 3.2	0.5 1.9 (14) 3.3	0.5 1.3 (3)* 2.7	0.5	0.6
Port Kembla (Sub-Station)	.. Av. H.D. H.V.	0.4 1.3 (17) 4.8	1.1 1.9 (5) 3.2	0.4 1.4 (3) 2.4	0.5 1.9 (22) 2.6	0.3 1.0 (14) 2.7	0.3 1.0 (26) 2.6	0.4 1.2 (18) 3.4	0.4 2.0 (1) 3.4	0.4 1.8 (8) 3.7	0.5 1.5 (19) 4.3	0.4 1.0 (9)* 2.5	0.5 1.8 (4) 2.5	0.5	..
Newcastle (Market Street)	.. Av. H.D. H.V.	0.3 0.8 (13) 1.8	0.3 0.7 (19) 1.5	0.4 1.4 (11) 2.5	0.6 1.3 (3) 2.1	0.6 1.2 (14) 2.5	.. .. ..	.. .. ..	1.4 2.2 (22) 4.5	1.0 1.9 (28) 3.3	0.8 2.2 (2) 4.0	0.4 1.3 (12)* 2.7	0.4 1.1 (19)* 2.6	0.6	0.6
Lithgow	.. Av. H.D. H.V.	0.6 1.7 (14) 4.8	0.8 2.6 (18) 5.4	1.0 2.4 (17) 4.0	1.8 3.6 (30) 7.2	1.7 3.4 (11) 8.5	1.7 3.6 (25) 6.8	2.6 5.1 (14) 8.0	2.2 5.0 (21) 9.2	1.6 4.1 (7) 7.8	1.6 2.9 (7) 6.5	1.3 3.0 (10) 5.3	1.2 2.2 (3)* 5.7	1.5	1.3

† AV: Monthly Average—2-hour samples. HD: Highest daily average for month. HV: Highest 2-hourly value for month.  
Value in brackets indicate the day of the month on which the highest daily average occurred.  
Asterisk indicates that the highest daily average occurred on more than one day.

TABLE 4—CONTINUOUS SMOKE MONITOR RESULTS—1970 SMOKE DENSITIES—2-HOUR SAMPLES  
Occurrence of Smoke Density Values

Site	*	January		Febru- ary		March		April		May		June		July		August		Septem- ber		October		Novem- ber		Decem- ber		Total 1970		Total 1969		
		D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	
George Street North Monitor Station	2 COH+	5	10	5	18	9	28	16	84	14	62	25	206	24	170	10	34	5	10	6	26	2	6	3	6	124	660	145	533	
	5 COH+ I.A.	0 80	0	0 100	0	0 100	0	0 100	0	0 100	0	0 94	0	0 98	0	0	0 100	0	0	0 100	0	0	0 100	0	0	0 98	0	5	6	..
State Office Block Monitor Station...	2 COH+	0	0	6	14	6	12	9	24	9	32	14	44	11	50	1	2	1	2	2	4	1	2	1	2	61	188	65	290	
	5 COH+ I.A.	0 100	0	0 100	0	0 100	0	0 74	0	0 100	0	0 99	0	0 100	0	0	0 100	0	0	0 100	0	0	0 98	0	0	0 98	0	0	0	..
Queen Victoria Building Monitor Station	2 COH+	12	30	21	68	5	14	12	52	22	126	23	112	19	96	12	48	8	30	4	12	0	0	0	0	138	588	196	1,524	
	5 COH+ I.A.	0 86	0	7 100	16	0 47	0	0 89	0	0 100	0	2 99	4	2 90	4	0	0 91	0	0	0 100	0	0	0 100	0	0	11 91	24	7	14	..
Rydalmere Monitor Station...	2 COH+	3	12	1	2	2	4	2	4	0	0	14	58	11	42	3	24	2	22	4	24	0	0	0	0	42	192	56	232	
	5 COH+ I.A.	0 100	0	0 90	0	0 100	0	0 100	0	0 100	0	0 100	0	0 100	0	0	0 100	1	2	0 100	0	0	0 100	0	0	1	99	1	2	..
Callan Park Monitor Station	2 COH+	1	2	3	8	5	14	6	20	12	48	14	88	22	200	10	50	9	34	6	22	2	4	0	0	90	490	115	596	
	5 COH+ I.A.	0 100	0	0 100	0	0 100	0	0 100	0	0 90	0	0 100	0	0 100	0	0	0 100	0	0	0 100	0	0	0 100	0	0	0 99	0	0	0	..
Prince Henry Hospital Monitor Station	2 COH+	2	6	4	12	7	28	13	42	7	18	14	56	12	42	6	18	5	14	4	22	2	8	0	0	76	266	74	366	
	5 COH+ I.A.	0 100	0	0 100	0	0 100	0	0 100	0	0 100	0	0 100	0	0 100	0	0	0 100	0	0	0 100	0	0	0 100	0	0	0 98	0	3	6	..
Prince of Wales Hospital Monitor Station	2 COH+	2	6	6	20	10	52	10	28	13	62	18	106	26	160	10	56	6	26	2	12	2	4	2	4	107	536	119	722	
	5 COH+ I.A.	0 100	0	0 100	0	0 100	0	0 99	0	0 100	0	0 100	0	0 100	0	0	0 100	0	0	0 100	0	0	0 100	0	0	0 100	0	0	0	..
Lidcombe Hospital Monitor Station	2 COH+	1	2	0	0	0	0	0	0	0	0	2	6	7	26	5	12	0	0	3	6	0	0	0	0	18	52	..	0	..
	5 COH+ I.A.	0 100	0	0 100	0	0 100	0	0 80	0	0 100	0	0 100	0	0 100	0	0	0 100	0	0	0 100	0	0	0 100	0	0	0 98	0	0	0	..

• D: Number of days in month where values of smoke equal to or greater than 2 COH units and 5 COH units occurred.  
H: Number of hours in month where values of smoke equal to or greater than 2 COH units and 5 COH units occurred.  
I.A: Instrument Availability (per cent).

TABLE 4—CONTINUOUS SMOKE MONITOR RESULTS—1970 SMOKE DENSITIES—2-HOUR SAMPLES—continued  
Occurrence of Smoke Density Values

Site	*	January		February		March		April		May		June		July		August		September		October		November		December		Total 1970		Total 1969	
		D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.
Ermington Monitor Station	2 COH+	0	0	0	0	1	2	7	18	8	24	9	40	21	96	10	28	6	14	3	6	0	0	1	2	66	230	72	276
	5 COH+ I.A.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	1	2	1	2
Sutherland Monitor Station	2 COH+	..	..	2	4	0	0	..	..	..	..	5	18	2	4	2	8	0	0	0	1	2	0	0	0	12	36	..	..
	5 COH+ I.A.	..	..	0	0	0	0	..	..	..	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..	..
Wollongong City Council	2 COH+	0	0	0	0	0	0	1	2	0	0	4	8	3	6	0	0	0	0	0	0	0	0	0	0	8	16	9	20
	5 COH+ I.A.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Port Kembla (Fire Station)	2 COH+	5	20	16	96	2	4	5	42	9	40	8	22	5	16	9	50	6	22	4	12	4	22	3	14	76	360	74	440
	5 COH+ I.A.	1	2	2	4	0	0	1	2	0	0	0	0	0	0	2	10	0	0	0	0	0	0	0	0	6	18	5	12
Port Kembla (Sub-Station)	2 COH+	4	16	13	78	4	18	6	26	2	6	3	10	6	16	4	30	3	14	7	28	3	10	8	34	63	286	..	..
	5 COH+ I.A.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	1	2	..	..
Newcastle	2 COH+	0	0	0	0	2	6	4	8	6	14	..	..	..	..	27	192	23	116	16	106	6	12	5	12	89	466	41	164
	5 COH+ I.A.	0	0	0	0	0	0	0	0	0	0	..	..	..	2	0	0	0	0	0	0	0	0	0	0	0	0	..	..
Lithgow	2 COH+	5	32	14	90	18	126	27	278	25	290	21	230	26	362	25	270	25	204	24	196	17	136	20	124	247	2,238	208	1,922
	5 COH+ I.A.	0	0	2	4	0	0	7	26	13	56	7	14	21	116	10	76	8	24	5	10	2	4	3	6	78	336	55	232
		73		100		96		100		100		100		98		86		100		100		100		100		96		..	..

TABLE 5—INCIDENCE OF SMOKE DENSITY  
(2 and 5 COH units/1,000 linear feet or more)  
*Sydney, Newcastle, and Lithgow, 1967–1970*

Site		1967		1968		1969		1970	
		Days	Hours	Days	Hours	Days	Hours	Days	Hours
Newcastle (Market Street)	.. .. .	181 8	1,021 13	172 1	1,048 2	41 ..	164 ..	89 ..	464 ..
Sydney (George Street)	.. .. .	203 10	1,278 20	229 14	1,230 42	145 5	533 6	124 ..	660 ..
Lithgow Town Hall	.. .. .	Insufficient Data		229 72	2,308 356	208 55	1,922 232	247 78	2,238 336

TABLE 6—SULPHUR DIOXIDE CONCENTRATIONS—24-HOUR SAMPLES  
*Sydney and Newcastle—1970*  
 Parts per 100 million (p.p.b.m.)

Site	*	January	February	March	April	May	June	July	August	September	October	November	December	Yearly Average 1970	Yearly Average 1969
Queen Victoria Building .. ..	Av. H.D.	2.5 5.0 (17)	2.7 9.7 (11)	2.7 7.3 (7)	2.9 8.6 (11)	3.1 5.4 (4)	3.3 7.0 (20)	3.1 5.7 (18)	2.7 5.3 (22)	3.3 6.4 (1)	3.9 7.8 (26)	2.2 5.4 (28)	3.3 5.0 (15)	3.0 ..	3.2 ..
Redfern Town Hall .. ..	Av. H.D.	5.0 8.1 (5)	6.0 8.3 (9)	5.6 9.9 (25)	4.8 10.9 (7)	3.7 8.4 (25)	5.1 7.5 (29)	5.2 10.0 (13)	4.6 7.4 (5)	2.8 5.9 (21)	4.2 6.0 (16)	3.8 7.0 (12)	3.2 4.6 (11)	4.3 ..	5.2 ..
Paddington Town Hall .. ..	Av. H.D.	4.4 9.5 (19)	5.5 6.8 (5)	5.2 12.9 (3)	4.2 7.4 (7)	4.4 6.7 (13)	4.2 6.5 (29)	4.6 6.5 (15)	3.6 5.8 (25)	3.0 5.9 (7)	4.6 8.7 (7)	4.3 8.3 (30)	5.5 10.8 (14)	4.6 ..	4.9 ..
Prince Alfred Park .. ..	Av. H.D.	1.8 3.6 (29)	2.9 4.7 (1)	2.4 6.0 (1)	2.6 4.4 (17)	2.9 7.5 (25)	3.5 7.6 (30)	3.6 7.1 (15)	2.8 5.2 (24)	2.7 4.7 (7)	2.8 5.0 (2)	1.8 4.5 (30)	2.1 3.5 (18)	2.7 ..	2.6 ..
North Sydney Council .. ..	Av. H.D.	0.8 1.2 (19)	0.7 1.2 (2)	1.1 1.9 (16)	1.2 2.9 (30)	.. ..	1.7 2.9 (23)	1.8 3.4 (7)	1.4 2.3 (20)	0.8 1.2 (16)	0.8 1.2 (1)	0.5 1.2 (4)	.. ..	1.1 ..	0.9 ..
Botany Town Hall .. ..	Av. H.D.	1.0 1.6 (28)	1.1 2.4 (19)	1.2 1.7 (3)	1.7 2.5 (21)	1.3 2.0 (19)	.. ..	2.1 4.3 (8)	1.2 2.4 (24)	1.1 1.9 (8)	1.2 2.0 (7)	1.0 1.8 (24)	0.7 1.1 (14)	1.2 ..	.. ..
Lidcombe Hospital .. ..	Av. H.D.	0.7 1.6 (14)	0.7 1.1 (19)	1.0 2.0 (2)	0.9 1.3 (22)	0.7 1.3 (25)	0.8 1.5 (24)	1.1 1.5 (7)	0.8 1.3 (27)	0.8 2.7 (21)	0.9 2.3 (13)	0.7 1.1 (10)	1.0 1.8 (3)	0.8 ..	.. ..
Wollongong (Fire Station) .. ..	Av. H.D.	.. ..	.. ..	1.2 3.8 (18)	4.3 19.6 (21)	1.9 15.8 (14)	1.1 5.4 (25)	1.6 1.7 (7)	2.7 12.0 (25)	3.3 19.8 (22)	5.2 24.6 (19)	3.0 10.8 (23)	5.1 20.8 (9)	2.9 ..	.. ..
City Hall, Newcastle .. ..	Av. H.D.	0.8 2.2 (3)	0.8 1.8 (28)	1.9 3.3 (13)	1.5 2.6 (7)	1.1 3.5 (6)	0.8 2.5 (23)	2.5 4.0 (9)	2.0 2.6 (22)	1.7 3.3 (9)	2.0 4.1 (2)	0.9 1.6 (10)	1.0 4.1 (22)	1.4 ..	1.3 ..
Bolton Street, Newcastle .. ..	Av. H.D.	1.6 3.1 (3)	1.7 3.3 (18)	4.3 6.9 (4)	4.4 6.4 (28)	2.9 5.5 (15)	2.7 7.9 (23)	4.7 7.3 (15)	4.8 7.0 (8)	4.3 6.6 (15)	2.8 6.6 (7)	3.3 5.7 (10)	3.9 5.4 (30)	3.4 ..	2.0 ..
Mayfield East, Newcastle .. ..	Av. H.D.	1.6 4.0 (13)	1.9 3.5 (20)	3.0 7.1 (20)	3.5 5.7 (24)	3.5 4.9 (5)	3.9 6.8 (18)	1.8 2.9 (18)	1.2 1.8 (11)	1.3 2.2 (23)	1.1 2.2 (28)	1.0 2.0 (11)	1.0 1.7 (10)	2.1 ..	2.2 ..
Neath .. ..	Av. H.D.	.. ..	.. ..	.. ..	0.4 1.1 (21)	0.5 0.8 (25)	0.6 1.4 (24)	1.1 1.8 (27)	0.9 1.3 (26)	1.4 2.0 (3)	.. ..	0.9 1.4 (9)	0.8 2.5 (9)	0.8 ..	.. ..
West Cessnock .. ..	Av. H.D.	.. ..	.. ..	.. ..	0.5 1.1 (16)	0.8 1.2 (24)	0.7 1.0 (3)	1.0 1.3 (14)	0.7 1.1 (3)	1.0 1.3 (21)	.. ..	0.9 1.8 (30)	1.6 2.8 (2)	0.9 ..	.. ..

\* AV: Monthly average concentration for 24 hour samples.  
 HD: Highest 24 hour concentration recorded during month.  
 Value in brackets indicate the day of the month on which the highest daily value occurred.

FIGURE 2

SYDNEY SULPHUR DIOXIDE  
ANNUAL AVERAGE CONCENTRATION PARTS PER HUNDRED MILLION

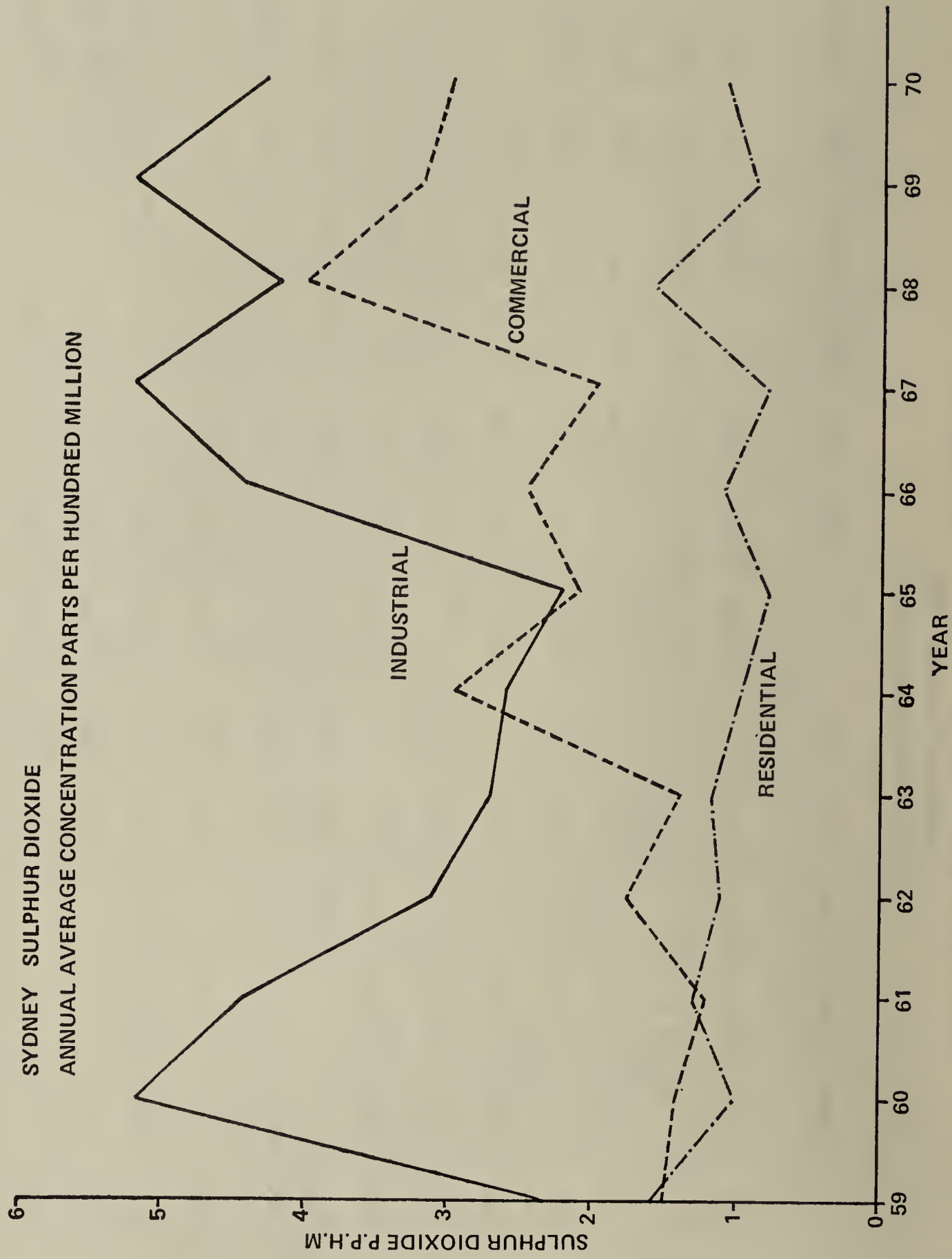


FIGURE 3  
MATRAVILLE N.S.W. 1970  
DAILY AVERAGES SULPHUR DIOXIDE  
PART PER HUNDRED MILLION

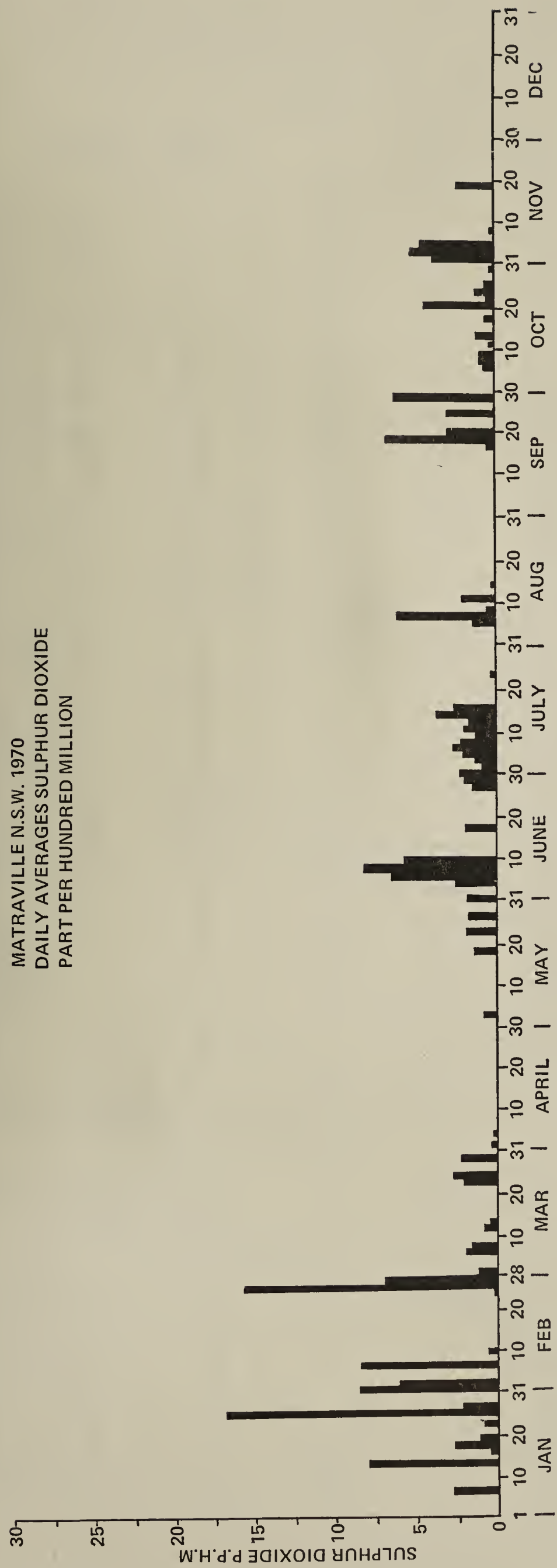


TABLE 7—DEPARTMENT OF PUBLIC HEALTH—DIVISION OF OCCUPATIONAL HEALTH—ATMOSPHERIC POLLUTION MEASUREMENTS—MEAN DEPOSIT GAUGE RESULTS—1970

Tons Per Square Mile Per Month  
(a) City of Sydney

Location of Gauge	Insoluble Solids Dust Fall	Combustible Matter	Ash	Insoluble Solids 1969
Art Gallery .. .. .	17.1	2.7	14.4	16.3
Central Railway .. .. .	9.8	2.6	7.2	16.8
Darlington .. .. .	6.4	1.8	4.6	9.8
George Street North .. .. .	10.0	2.6	7.4	10.2
*Martin Place .. .. .	35.6	3.7	31.9	41.9
Paddington .. .. .	6.0	1.7	4.3	7.1
Potts Point .. .. .	9.1	2.8	6.3	12.8
Pymont .. .. .	10.7	3.4	7.3	17.3
Redfern .. .. .	9.2	2.6	6.6	10.5
Town Hall .. .. .	14.5	3.3	11.2	13.0
Auburn, Asquith Street .. .. .	7.3	1.7	5.6	14.5
Lidcombe Monitor Station .. .. .	4.3	1.0	3.3	..
Chester Hill, Banool Street .. .. .	4.2	1.1	3.1	7.3
Bankstown, Civic Centre .. .. .	3.7	0.9	2.8	4.7
Greenacre, Noble Avenue .. .. .	4.7	1.0	3.7	9.3
Panania, Burns Road .. .. .	5.2	1.6	3.6	5.5
Padstow, Stuart Street .. .. .	5.6	2.3	3.3	7.3
Botany, Coward Street .. .. .	7.3	2.0	5.3	8.1
Botany, Stephen Road .. .. .	7.9	2.1	5.8	9.3
Botany, Denison Street .. .. .	12.3	3.2	9.1	..
Burwood, Lucas Road .. .. .	5.3	1.2	4.1	10.4
Enfield, Mitchel Street .. .. .	8.8	1.9	6.9	13.3
Burwood, Sherars Avenue .. .. .	4.8	1.4	3.4	7.5
Concord, Leigh Avenue .. .. .	5.2	1.3	3.9	7.9
Mortlake, Turner Avenue .. .. .	8.6	4.1	4.5	12.0
Drummoyne, Cary Street .. .. .	6.5	2.1	4.4	8.9
Abbotsford, Montrose Road .. .. .	4.2	1.8	2.4	7.1
Fairfield, Civic Centre .. .. .	6.4	1.4	5.0	8.1
Smithfield, Shopping Centre .. .. .	10.8	2.4	8.4	13.3
Hunters Hill, Gladesville Road .. .. .	5.9	1.7	4.2	6.0
Hurstville, Council Chambers .. .. .	4.7	1.3	3.4	5.3
Annandale, Johnston Street .. .. .	11.2	2.9	8.3	13.1
Balmain, Birchgrove Road .. .. .	9.1	3.5	5.6	9.9
Leichhardt, Macaulay Street .. .. .	4.3	1.7	2.6	6.1
Callan Park Monitor Station .. .. .	6.3	1.9	4.4	8.2
Rozelle, Quirk Street .. .. .	9.7	2.8	6.9	11.7
Sydenham, Unwins Bridge Road .. .. .	8.6	2.1	6.5	10.0
Crows Nest, Pacific Highway .. .. .	3.4	1.0	2.4	4.7
Chifley, Carnegie Circuit .. .. .	11.3	2.7	8.6	13.6
Prince Henry Hospital Monitor Station .. .. .	15.4	2.6	12.8	15.7
Matraville, Jersey Road .. .. .	13.9	3.0	10.9	10.6
Prince of Wales Hospital Monitor Station .. .. .	6.1	1.7	4.4	6.2
North Ryde, Wicks Road .. .. .	4.8	1.4	3.4	6.2
Double Bay, New South Head Road .. .. .	4.3	1.4	2.9	5.6
Watsons Bay, Cliffe Street .. .. .	3.4	0.9	2.5	4.2
Blacktown, Civic Centre .. .. .	4.7	1.2	3.5	7.8
Doonside, Kildare Road .. .. .	6.6	2.3	4.3	9.0
Thornleigh, Lackerbie Road .. .. .	6.4	1.5	4.9	8.0
Sutherland, Milburn Road .. .. .	5.6	1.4	4.2	9.3
Woollooware, Denman Avenue .. .. .	7.8	1.4	6.4	9.3
Captain Cook Landing Site, Kurnell .. .. .	4.0	1.1	2.9	..
Woollooware Monitor Station .. .. .	9.3	1.5	7.8	..
Campbelltown, Civic Centre .. .. .	5.2	1.4	3.8	7.4

\* The Martin Place Gauge was frequently contaminated during the year because of demolition and building operations going on nearby.

(b) City of Wollongong

Location of Gauge	Insoluble Solids Dust Fall	Combustible Matter	Ash	Insoluble Solids 1969
Wollongong, Stewart Street .. .. .	18.7	3.4	15.3	18.3
Wollongong, New Dapto Road .. .. .	16.6	3.3	13.3	17.7
North Wollongong, Keira Street .. .. .	13.2	3.2	10.0	14.5
Primbee, Korrungulla Crescent .. .. .	19.7	3.1	16.6	15.9
Port Kembla, Jubilee Street .. .. .	28.4	5.8	22.6	27.3
Port Kembla, Wentworth Street .. .. .	21.7	3.6	18.1	17.9
Port Kembla, Military Road .. .. .	37.4	6.0	31.4	30.2
Cringila, Shellharbour Road .. .. .	32.1	7.2	24.9	33.2
Cringila, Montieth Street .. .. .	22.4	5.2	17.2	23.6
Cringila, Sheffield Street .. .. .	16.6	3.1	13.5	14.1
Warrawong, Lake Heights Road .. .. .	28.9	6.4	22.5	31.0
Warrawong, Wattle Street .. .. .	26.7	5.1	21.6	40.0
Lake Heights, Northcliffe Drive .. .. .	21.6	4.4	17.2	27.0
Coniston, Bridge Street .. .. .	22.5	3.7	18.8	24.1
Port Kembla Hospital .. .. .	26.3	5.6	20.7	28.0
Dapto Olympic Pool .. .. .	11.2	1.7	9.5	13.6
Patterson Street Coalcliffe .. .. .	20.4	8.0	12.4	16.1

TABLE 7—continued  
(c) City of Newcastle

Location of Gauge						Insoluble Solids Dust Fall	Combustible Matter	Ash	Insoluble Solids 1969
Newcastle, City Hall	..	..	..	..	..	10.9	5.2	5.7	10.7
Newcastle, Hall Street	..	..	..	..	..	22.0	9.4	12.6	24.1
Newcastle, Scott Street	..	..	..	..	..	13.9	5.9	8.0	17.1
Stockton, Fullerton Street	..	..	..	..	..	12.8	5.2	7.6	14.0
Stockton, Pembroke Street	..	..	..	..	..	17.6	5.8	11.8	15.8
Carrington, Public Works Department	..	..	..	..	..	12.0	5.2	6.8	15.0
Carrington, Fitzroy Street	..	..	..	..	..	22.0	7.7	14.3	125.8
Carrington, Bourke Street	..	..	..	..	..	44.3	25.0	19.3	44.2
Tighes Hill, Kings Road	..	..	..	..	..	26.4	10.7	15.7	27.8
Mayfield East, Walsh Street	..	..	..	..	..	31.8	10.6	21.2	24.8
Mayfield, Ingall Street	..	..	..	..	..	22.9	7.0	15.9	29.4
Mayfield, Carrington Street	..	..	..	..	..	17.6	6.0	11.6	21.4
Mayfield, Fitzroy Street	..	..	..	..	..	17.9	5.9	12.0	23.3
Mayfield, Maitland Road	..	..	..	..	..	11.0	3.9	7.1	14.2
Waratah, Lorna Street	..	..	..	..	..	11.2	4.9	6.3	14.1
Broadmeadow, Broadmeadow Road	..	..	..	..	..	11.9	4.3	7.6	14.7
Merewether, Macquarie Street	..	..	..	..	..	9.2	4.1	5.1	9.2
Adamstown, Brisbane Water Road	..	..	..	..	..	11.0	4.3	6.7	12.8
Kotara, Park Avenue	..	..	..	..	..	16.6	7.0	9.6	13.9
Kotara, Seaview Street	..	..	..	..	..	9.9	5.3	4.6	11.3
Kotara, Woodlands Avenue	..	..	..	..	..	10.3	3.8	6.5	12.5
Wallsend, Crest Road	..	..	..	..	..	9.2	3.8	5.4	11.4
Wallsend, Drury Street	..	..	..	..	..	11.6	5.8	5.8	22.0
Hamilton, Baby Health Centre	..	..	..	..	..	9.5	3.4	6.1	12.2
Stockton, Beeston Road	..	..	..	..	..	16.5	7.7	8.8	17.6

(d) City of Parramatta

Location of Gauge						Insoluble Solids Dust Fall	Combustible Matter	Ash	Insoluble Solids 1969
Ermington, Naval Depot	..	..	..	..	..	6.2	2.1	4.1	8.0
Harris Park, Alice Street	..	..	..	..	..	6.5	2.2	4.3	9.4
Northmead, Frances Street	..	..	..	..	..	4.8	1.3	3.5	5.1
Rydalmere Monitor Station	..	..	..	..	..	26.0	11.9	14.1	22.8

(e) Lake Macquarie

Location of Gauge						Insoluble Solids Dust Fall	Combustible Matter	Ash	Insoluble Solids 1969
Speers Point, Albert Street	..	..	..	..	..	5.2	1.4	3.8	7.1
Argenton, Victoria Street	..	..	..	..	..	7.6	2.2	5.4	11.7
Boolooroo, Fourth Street	..	..	..	..	..	5.8	1.6	4.2	7.3
Cockle Creek, Rescue Station	..	..	..	..	..	7.7	1.5	6.2	7.2
Rathmines, Fishing Point Road	..	..	..	..	..	6.7	1.1	5.6	9.8
Balmoral, Letchworth Parade	..	..	..	..	..	6.4	1.2	5.2	13.0

(f) Lithgow

Location of Gauge						Insoluble Solids Dust Fall	Combustible Matter	Ash	Insoluble Solids 1969
Lithgow, Mort Street	..	..	..	..	..	8.9	2.0	6.9	12.6
Lithgow, Macaulay Street	..	..	..	..	..	6.6	2.1	4.5	7.1
Lithgow, Martini Parade	..	..	..	..	..	8.2	2.0	6.2	6.6
Lithgow, Geordie Street	..	..	..	..	..	11.7	2.3	9.4	20.8

(g) Shellharbour

Location of Gauge						Insoluble Solids Dust Fall	Combustible Matter	Ash	Insoluble Solids 1969
Albion Park, Tongarra Road	..	..	..	..	..	13.2	2.0	11.2	7.2

(h) Bowral

Location of Gauge						Insoluble Solids Dust Fall	Combustible Matter	Ash	Insoluble Solids 1969
Bowral, Railway Parade	..	..	..	..	..	10.4	2.2	8.2	10.8

FIGURE 4

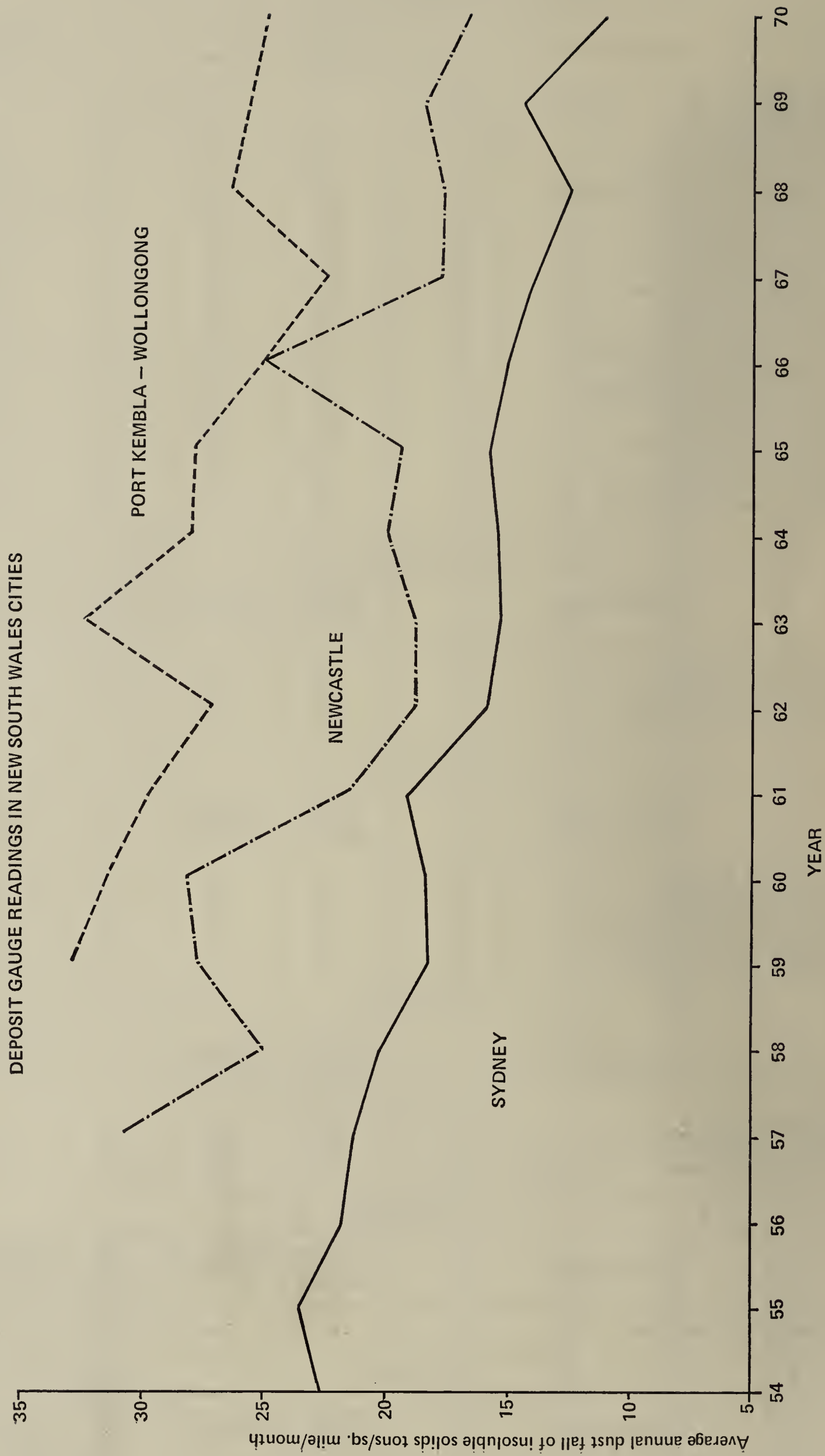


TABLE 8—CARBON MONOXIDE CONCENTRATIONS—1970—SYDNEY—QUEEN VICTORIA BUILDING  
*Maximum Concentrations*

Sampling Period					Maximum CO Concentration Including Anniversary Celebrations	Maximum CO Concentration Excluding Anniversary Celebrations
5 minutes	..	..	..	..	114	96
1 hour	..	..	..	..	71	66
8 hours	..	..	..	..	53	40
1 day ..	..	..	..	..	27	21
1 month	..	..	..	..	13.4	13.4
12 months	..	..	..	..	10.4	10.4

TABLE 9—MONTHLY AVERAGES AND PER CENT FREQUENCIES OF CARBON MONOXIDE CONCENTRATIONS

Month	Per Cent Sampling Time	Monthly Average p.p.m.	Per Cent Frequencies of CO concentrations (for 8-hour sampling periods)		
			Per Cent Frequency ≥ 20 p.p.m.	Per Cent Frequency ≥ 30 p.p.m.	Per Cent Frequency ≥ 50 p.p.m.
February .. .. .	94.9	8.6	0.5	0.0	0.0
March .. .. .	100.0	8.5	3.3	0.0	0.0
April .. .. .	90.7	11.2	12.3	4.0	0.5
May .. .. .	68.7	12.0	20.4	2.6	0.0
June .. .. .	98.7	13.4	20.7	1.9	0.0
July .. .. .	90.3	11.2	10.0	1.0	0.0
August .. .. .	76.7	10.9	11.2	0.0	0.0
September .. .. .	96.1	11.6	14.7	1.9	0.0
October .. .. .	96.4	10.8	12.4	2.1	0.0
November .. .. .	63.7	9.9	7.1	0.2	0.0
December .. .. .	99.1	8.9	9.0	1.4	0.0
January '71 .. .. .	98.8	8.1	1.6	0.0	0.0
Annual Average .. .. .	89.5	10.4	10.3	1.3	0.04

TABLE 10—HIGH VOLUME SAMPLES JANUARY, 1968–DECEMBER, 1970 CONCENTRATIONS OF SUSPENDED DUST, LEAD, COPPER, AND IRON  
*Micrograms Per Cubic Metre*

Site		Suspended Dust				Lead				Copper				Iron			
		No. Samples	Maximum	Minimum	Average	No. Samples	Maximum	Minimum	Average	No. Samples	Maximum	Minimum	Average	No. Samples	Maximum	Minimum	Average
Rydalmere ..	..	77	120.8	10.2	41.2	77	1.33	0.04	0.38	75	1.10	Trace	0.17	65	2.15	0.05	0.66
Callan Park	..	74	138.2	4.3	43.2	77	3.00	0.08	0.47	75	0.60	Trace	0.21	64	1.65	0.17	0.57
Prince Henry	..	59	124.9	3.9	49.6	61	1.37	0.04	0.37	61	2.55	Trace	0.42	60	2.06	0.17	0.63
Prince of Wales	..	75	197.0	13.6	49.2	76	5.06	0.04	0.66	75	1.37	0.03	0.28	64	2.10	0.06	0.59
Wollongong	..	28	88.9	3.7	32.5	27	0.73	0.12	0.27	28	0.31	0.03	0.10	28	11.76	0.29	3.20

RADIATION BRANCH

Officer-in-Charge: H. M. WHAITE, B.E.

The branch is mainly concerned with routine inspections of premises where radioisotopes or irradiating apparatus are being used, as well as with the investigations of applications for licenses under the Radioactive Substances Act. However, as in other branches of the division, there has been a marked increase in our attention to the question of environmental pollution, particularly as it affects the discharge of liquid radioactive wastes into streams or into the ocean.

LICENSES UNDER THE RADIOACTIVE SUBSTANCES ACT

Despite its title, the Act covers not only radioactive substances (radioisotopes or radionuclides) but also irradiating apparatus (X-ray machines, linear accelerators, etc.). Subject to certain exemptions, persons possessing or using these substances or equipment must hold a license. After investigation by the branch, each application is considered by the Radiological Advisory Council and recommendations forwarded to the Under Secretary for approval.

In the following table, the letter “X” has been used to designate licenses to possess or use irradiating apparatus, and the letter “R” those to possess, use or sell radioactive substances:

LICENSES ISSUED UNDER THE RADIOACTIVE SUBSTANCES ACT DURING 1970

License Category				X-ray or Radioisotope	Licenses at 31-12-69	New Licenses issued during 1970	Lapse of Licenses during 1970	Licenses at 31-12-70	Percentage Change during 1970	
Medical	..	..	..	X	377	21	50	348	- 8%	
				R	72	5	2	75	+ 4%	
Hospital (Scientific, Research and Medical)	..	..	..	X	193	22	3	212	+10%	
				R	104	9	3	110	+ 6%	
Dental	..	..	..	X	1,102	51	68	1,085	- 2%	
Veterinary	..	..	..	X	94	13	18	89	- 5%	
				R	5	0	0	5	0%	
Chiropractic	..	..	..	X	72	18	1	89	+24%	
Scientific and Research (Not Hospital)	..	..	..	X	52	13	9	56	+ 8%	
				R	149	46	3	192	+29%	
Industrial	..	..	..	X	102	23	37	88	-14%	
				R	173	62	37	198	+14%	
Commercial	..	..	..	R	33	5	5	33	0%	
Total	..	..	..	X	1,992	161	186	1,967	- 1%	
				R	536	127	50	613	+14%	
Combined Total				..	X and R	2,528	288	236	2,580	+ 2%

The nett gain of 2 per cent is much lower than in previous years. There is a drop in the use of X-rays for diagnostic purposes by private medical practitioners, but a considerable increase in radioisotope usage in university and other research laboratories. Whilst the number of licensed chiropractors is increasing, the number of dentists is practically static. A feature is the decrease in the industrial use of irradiating apparatus, which is mainly due to replacement of X-ray equipment by corresponding devices using suitable radioactive substances.

FIELD INSPECTIONS

The number of inspections carried out by scientific officers and radiographer inspectors increased from 1,205 in 1969 to 1,313 in 1970. There were no changes worthy of comment in the pattern of this work.

FIELD INSPECTIONS CARRIED OUT DURING 1970

Category	X-ray or Radioisotope	Number of Inspections		Category Totals	
		License	Non- License	1969	1970
Medical .. .. .	X	7	160	163	167
	R	1	3	10	4
Hospital .. .. .	X	2	136	128	138
	R	0	5	3	5
Dental .. .. .	X	19	674	643	693
Veterinary .. .. .	X	14	50	68	64
	R	0	0	4	0
Chiropractic .. .. .	X	15	40	51	55
Scientific and Research .. .. .	X	11	9	16	20
	R	32	21	55	53
Industrial .. .. .	X	26	25	16	51
	R	46	9	36	55
Commercial .. .. .	X	0	1	11	1
	R	1	4	1	5
Transport .. .. .	R	0	2	0	2
Total .. .. .	X	94	1095	1096	1189
	R	80	44	109	124
Combined Total .. .. .	X and R	174	1139	1205	1313

VISITS TO COUNTRY DISTRICTS

The following table shows the distribution of visits to the Department’s health districts; Sydney and suburbs are excluded. Each visit would represent from one to twenty-four inspections, with an average of nearly eight.

Health District										Number of visits
Metropolitan (excluding Sydney and suburbs) .. .. .										13
Newcastle .. .. .										11
North Coast .. .. .										2
South Coast .. .. .										8
Western .. .. .										4
North-western .. .. .										1
Riverina .. .. .										3
Broken Hill .. .. .										0
Total .. .. .										42

This distribution is not significantly different from that of the previous year.

FILM-BADGE SERVICE

In a previous report, mention was made of a “rationalization” scheme whereby discontinuance of film-badging was recommended when no person in an organization had received over 1,500 millirem per annum during the previous 2 years. This previously resulted in a temporary decrease in both the number of organizations and number of individuals covered by the branch’s film-badge service; however, from the following table, it will be seen that both have increased by 12 per cent over the past year. If this expansion continues, we can foresee the day when, if preliminary film-badging shows that the limit of 1,500 millirem per year is unlikely to be exceeded, we will be openly discouraging persons from participating in the service.

FILM-BADGE SERVICE—DISTRIBUTION AMONGST OCCUPATIONAL CATEGORIES IN 1969 AND 1970

Category	Number of Organizations		Number of Persons		Persons per Organization	
	1969	1970	1969	1970	1969	1970
Medical .. .. .	78	96	228	263	2.9	2.7
Hospital .. .. .	140	130	1203	1255	8.6	9.7
Dental .. .. .	118	145	374	470	3.2	3.2
Veterinary .. .. .	40	43	125	140	3.1	3.3
Chiropractic .. .. .	31	33	48	52	1.5	1.6
Scientific and Research .. .. .	58	72	282	324	4.9	4.5
Industrial .. .. .	53	63	300	364	5.7	5.8
Total .. .. .	518	582	2560	2868	4.9	4.9
Per Cent Increase over Year	—49%	+12%	—23%	+12%	+50%	0%

## INDUSTRIAL RADIOGRAPHY

The use of radiography in industry has grown to the stage where 32 separate organizations are employing over 150 persons classified as industrial radiographers. Three 2-day courses, attended by 25 radiographers as a prerequisite to the issue of licenses, were held. To further the cause of safety in this field, discussions have been held with appropriate educational authorities in order to institute suitable training courses at the level of the operator. Ultimately it is hoped to establish a national certification scheme.

The annual dosages received by industrial radiographers did not reveal any significant changes during 1970, when compared with 1969.

ANNUAL DOSAGE DISTRIBUTION AMONGST INDUSTRIAL RADIOGRAPHERS, 1969 AND 1970

Year	Dosage (rems) —	0-1	1-2	2-3	3-4	4-5	Over 5	Total
1969	No. of persons.. ..	132	15	1	0	0	2	150
	% of Total .. ..	88 %	10 %	1 %	0 %	0 %	1 %	100 %
1970	No. of persons.. ..	138	10	3	1	0	0	152
	% of Total .. ..	91 %	6 %	2 %	1 %	0 %	0 %	100 %

## RADIATION INCIDENTS

These were comparatively minor, and, with one exception, subjected no one to increased radiation exposure.

Brief details are as follows:

- (1) Investigations were made of two radioactive air cargoes which were found to be damaged at the airport before delivery. In each case, as the damage was restricted to the outer container, no contamination occurred and there was no loss of shielding integrity.
- (2) A metallurgist was accidentally exposed to radiation whilst preparing a teaching demonstration of industrial radiographic techniques. For a period of less than 1 minute, he handled a capsule containing 1.5 curies of iridium-192 in the mistaken belief that the capsule was a "dummy". Film-badge and calculated estimates of the resultant radiation exposure indicated a dosage of only 40 millirem to the body, which is less than one-hundredth that permitted to a radiation worker yearly. His finger dosage was higher, being approximately half that permitted in a year. There were no biological effects. Steps have been taken to prevent recurrence of this type of incident.
- (3) Whilst being used to mark the interface between fuel oil and furnace oil at a terminal, a radioactive "go-devil", comprising a 5-millicurie cobalt-60 sealed source in a 14-inch diameter foam-rubber carrier, was inadvertently pumped into a 45-foot diameter fuel-oil storage tank. The source is now lodged in a 4½-foot thickness of sludge at the bottom of the tank, and is not expected to be recovered until the tank is drained for inspection, in 5 years' time. There is no detectable radiation on the outside nor anywhere in the vicinity.
- (4) A bin containing over 2,000 tons of coal collapsed during tests prior to commissioning, leading to the burial of four radioactive level gauges attached to the hoppers. Each gauge contained approximately 50 millicuries of cobalt-60 and, although the source housings were extensively damaged, the integrity of the inner lead shielding was not affected. They were subsequently recovered manually, without undue radiation exposure, and sent to the Australian Atomic Energy Commission's Research Establishment at Lucas Heights for recovery of the sources.

## ENVIRONMENTAL SURVEYS

With the appointment of a senior radiochemist, progress is being made in this aspect of the work. A low-level counter has been calibrated for gross beta and strontium-90/yttrium-90 determinations, a liquid scintillation counter for hydrogen-3 (tritium), carbon-14, iodine-131, and promethium-147, and a gamma spectrometer for cobalt-60, iodine-131, and caesium-137.

### (1) Effluents from atomic reactor

Low-level radioactive waste from the Australian Atomic Energy Commission's Research Establishment at Lucas Heights are discharged into the Woronora River in accordance with a formula decided by agreement with the State authorities. Three surveys of the river were carried out during the year, in which water, sand, and weed were sampled. Gross alpha, gross beta, gamma spectrometric and tritium measurements were made, and results showed that the gross radioactivity was close to background levels. Tritium concentrations were in close agreement with those made available by the A.A.E.C. Health and Safety Division, and were well below the maximum permitted concentration for that radionuclide.

## (2) Proposed Jervis Bay Nuclear Power Station

Late in 1969, the Australian Atomic Energy Commission set up a working party on environmental studies in regard to the proposed nuclear power station to be built on Commonwealth territory at Jervis Bay. Originally this group consisted of representatives from the Commission, the Electricity Commission of N.S.W. and this Department, but it was later widened to include representatives from the Commonwealth Health Department and the Fisheries Branch of the Chief Secretary's Department. It is specifically responsible for developing discharge formulae for the effluents and making recommendations regarding environmental measurements.

During 1970, the working party met four times and its members individually visited the selected site. To date, its activities have been limited to a review of hydrographical and meteorological studies jointly carried out by the Australian Atomic Energy Commission and Electricity Commission of N.S.W., and of ecological studies by the former body. Special consideration has been paid to the concept of "critical groups" of exposed persons, and to the determination of the concentration factors of the various nuclides in organisms supplying food to human beings.

Surveys are being carried out by the Atomic Energy Commission to establish background conditions prior to the commissioning of the reactor. The Radiation Branch is also making independent examinations, but on a lesser scale, of fish, weed, sand, and water.

## NATIONAL HEALTH AND MEDICAL RESEARCH COUNCIL'S SURVEY TO ASSESS THE GENETIC AND MEAN BONE MARROW DOSE TO THE AUSTRALIAN POPULATION

This survey was recommended to the council by its Radiation Health (Standing) Committee in order to establish a more reliable measure of these dosages than the present estimates, which were based on a selected section of the population, and which are not now considered representative of the whole. It consists of two stages. The first covers the collection of statistical data on the number and types of radiological examinations and radiotherapeutic treatments carried out per year in relation to the sex and age of the patients; the second will provide physical data (using dosimeters) on the average doses to the gonads and bone marrow for each type of examination and treatment carried out.

In each State, a representative group was set up to advise persons on difficulties arising in completing the questionnaire forms. In New South Wales, this consisted of seven members whose specialties covered radiotherapy, radiology, dentistry, nuclear medicine, medical radiography, health physics, and statistics. The forms were sent out by the Radiation Branch and are being checked for completeness and general consistency on their return prior to despatch to the Commonwealth X-Ray and Radium Laboratory for processing. Altogether, 12,659 forms were issued of which approximately 60 per cent went to medical X-ray departments and practices and 30 per cent to dental X-ray departments and practices. The remaining 10 per cent covered all therapy departments and practices, and the use of unsealed radioactive substances in diagnosis.

Many of the questionnaire forms were completed and returned before the end of the year, but there has been a carryover into 1971. It is therefore too early to comment on the results of the first part of this survey.

The branch will also participate in the second part, and will be responsible for the issue of the dosimeters to selected participants and their return to the assessing committee, as well as for checking the completeness and consistency of the information supplied.

## MICROWAVES

The attention of the bodies responsible for health and safety has been focused on the expanding use of microwaves in the community. An officer of this branch is a member of the Standards Association committee which is currently completing a draft standard on microwave cooking devices, and he also attended a meeting of representatives of the Commonwealth and State Departments of Health on the potential hazards to health of microwave ovens. Recommendations were prepared for consideration by the Radiation Health (Standing) Committee of the National Health and Medical Research Council.

At present, there are less than 2,000 microwave ovens in Australia, few of them being in domestic use. However, at least one company is manufacturing them in Australia, and their use is expected to rise sharply.

A small number of ovens were inspected during the year. Difficulties in assessment were experienced due to the large size of our monitoring probe with respect to the narrow beams of leakage radiation. A satisfactory type of instrument has been developed overseas, and is highly recommended by the United States Department of Health, Education and Welfare. It is hoped to obtain one of them at a later date.

## LASERS

There is no legislation controlling the possession and use of lasers. However, companies selling these devices have been contacted, and a survey of their distribution has been carried out. Most are currently being used in research institutions. A survey to determine their hazards, and to formulate safety rules, is under consideration.

## WATER POLLUTION BRANCH

Submissions were made relating to the staffing of the branch; initially the latter will be located at the Division's former city premises.

The division's public health engineer, who is currently making preliminary investigations into the extent and type of water pollution in N.S.W., paid an official visit to New Zealand to enquire into the effectiveness of that country's legislation and overall approach to this form of pollution. Subsequently, several important amendments to the N.S.W. draft legislation were recommended. Evaluations and recommendations were also made with respect to many detailed submissions, from sources outside the Department, made to the Minister for Health on proposed amendments to the draft Bill. The Clean Waters Act was assented to in December.

The Director of the Division visited several water pollution control organizations' chemical and water biology laboratories in the United Kingdom and in America. Specific recommendations on the equipping of laboratories and water transport, for the branch have been made.

## CENTRAL SERVICES

### MECHANICAL AND ELECTRICAL WORKSHOPS

Most of the work carried out related to the preventive maintenance, servicing, and modification of existing instruments, many of which come from overseas with resulting difficulties of obtaining spare parts. Some of the new equipment constructed included sequential samplers, an apparatus to evaluate the degree of slipperiness of floors, and a glass grinding machine required to check the refractive index of glass.

### PHOTOGRAPHIC UNIT

A large number of photographs were taken in connection with divisional laboratory, field educational and research activities.

## THE INSTITUTE OF CLINICAL PATHOLOGY AND MEDICAL RESEARCH

*Director:* Dr H. KRAMER, M.B., Ch.B.(U.C.T.), D.Phil.(Oxon.), M.R.C.P.A., F.R.C.Path.,  
F.A.C.M.A., F.A.A.C.B.

*Deputy Director:* Associate Professor E. S. FINCKH, M.D., B.S., D.C.P., F.R.C.Path., M.R.C.P.A.,  
F.R.A.C.P.

*Location:* Joseph Street, Lidcombe, New South Wales, 2141

Established in 1959, The Institute of Clinical Pathology and Medical Research provides a comprehensive clinical pathology service for the whole of the State of New South Wales available free of charge to all public and state hospitals and to medical practitioners attending patients unable to afford the fees of a private pathologist. Specimens for investigations not otherwise available in the State are accepted without financial restriction, while the Exfoliative Cytology, Venereal Disease Serology and Virology Departments also provide a free service which is generally available. The institute also undertakes the training of medical technologists and doctors wishing to specialize in clinical pathology and in addition carries out medical research in the various specialized branches of laboratory medicine.

As in the past, the various activities of the institute will be considered under the following headings:

- A. Clinical Pathology Service.
- B. Training of Pathologists and Medical Technologists.
- C. Research.

### A. CLINICAL PATHOLOGY SERVICE

Pathology is the study of disease in all its aspects; as such it constitutes the foundation on which the whole practice of medicine is based. For many years it embraced little more than the study of structural damage done to the body by the various disease processes to which mankind is subject and in consequence, was carried out mainly in the post mortem room and the lesser extent on tissues removed surgically. Up until the war, pathology consisted of little more than this together with the study of the bacterial cause of disease. Relatively simple examinations of blood and urine were sometimes done by clinicians in the side room of a ward. It was long recognized however that many diseases which produce no recognizable structural damage caused profound disturbances of function but it is really only since the war that the application of refined physical and chemical methods to the study of biological material has made possible the extremely accurate measurements necessary to reveal these disorders of function. Clinical pathology as it is now called, is a highly developed specialized branch of medicine concerned with the laboratory investigation of all the manifestations of disease processes both structural and functional and its growth has been accompanied by a revolutionary change in the whole practice of medicine.

Formerly, clinical practice was largely an art, with doctors relying on a careful history of symptoms and examination of the patient to elicit physical signs as a guide to diagnosis while treatment was largely empirical, with the gross reactions of the patient the only guide. Today the whole picture is completely altered. Medicine has become a science and the clinician demands precise measurements to ensure accuracy in diagnosis and precision in the control of treatment. In an ever growing number of cases the clinical findings serve now only as a guide to the laboratory investigations which the clinician demands. Diagnosis depends not only on positive laboratory findings, but differential diagnosis demands a great variety of negative findings as well, as an aid to the exclusion of other possible considerations, whilst in many instances the selection and control of treatment are also under laboratory guidance. Whereas in the past this type of medicine was regarded as the prerogative of the larger teaching hospitals, in recent years its practice has widened progressively so that today even the smaller hospitals and general practitioners are constantly clamouring for greater investigational facilities.

While it is no simple matter to meet these demands, they should not be discouraged. Indeed, if the quality of medical care is to be improved, with all that means in terms of national economy and social well being, every effort should be made to meet the demand, within reason, as without ready access to investigational facilities the modern doctor is handicapped in caring for his patients. Medical practitioners are by no means the only source of pressure for more laboratory investigations; patients are becoming increasingly aware of the need for proper investigation of their ailments as the mass media of communication publicise medical and scientific topics. It is in this context that the activities of the Institute of Clinical Pathology and Medical Research must be viewed. The range of investigations it undertakes is very broad embracing as it does practically every test of proved usefulness for which there is a demand. In its short history the institute has come to occupy a key position, with virtually every hospital in the State dependent to a lesser or greater degree on the service it provides. Many of the smaller country hospitals have either very limited or no laboratory facilities at all and are entirely dependent on the Institute. The larger base or district hospitals usually have laboratories staffed by a medical technologist within most cases, no specialist pathologist in attendance, although some have a visiting pathologist, while a small proportion enjoy the services of a full time pathologist. In any event, the range of work which they undertake is limited and what they cannot do is referred to the institute.

The institute is divided into seven separate departments and an account of their activities follows.

Pathological Anatomy and Histology

This department is concerned with the gross and microscopic study of tissue removed surgically for purposes of diagnosis or during the course of treatment; its function is to establish the nature of the disease process. Of particular importance is the presence or absence of malignant disease because it is only by histological examination that this can be definitely confirmed or excluded.

The number of specimens received during the year totalled 13,829, 12 per cent more than in 1969. From these 50,278 sections were prepared and examined. It is of interest to record that in 1,961 cases the diagnosis of cancer was established (642 major cancers; 1,319 skin cancers); equally noteworthy is the large number of people who could be reassured that their disease was not malignant Autopsies performed for the Lidcombe Hospital totalled 175 and organs and tissues from another 115 were submitted from other hospitals.

The Histopathology Department now ranks as the busiest in Australia and it is a matter for no little satisfaction that virtually all the work is done by staff who have received all their training at this Institute.

Work on building up the museum of pathological specimens for teaching purposes has continued and during the year accessions numbered twenty-two.

Exfoliative Cytology

Exfoliative cytology is concerned with the microscopic examination of cells which are constantly being shed from body surfaces as a normal event. It is now well established that changes indicative of developing cancer are recognizable in such exfoliated cells long before the disease becomes manifest clinically. Cancer of the cervix of the uterus, one of the commonest cancers of women, is particularly susceptible to early detection by this method and in 1962 a Department of Exfoliative Cytology was established at the institute in order to provide a state-wide service for the early detection of uterine cancer. During the year the work of this Department expanded rapidly with some 2,500 doctors from all over the state submitting specimens. In all, 202,003 specimens were received, an increase of 6.5 per cent over the figure for 1969.

The growth rate in the work done by the Department of Exfoliative Cytology over the 7 years since it was opened is shown below:

SMEARS RECEIVED									<i>Smears</i>
1962 ..	..	..	..	..	..	..	..	..	16,512
1963 ..	..	..	..	..	..	..	..	..	37,538
1964 ..	..	..	..	..	..	..	..	..	56,565
1965 ..	..	..	..	..	..	..	..	..	87,828
1966 ..	..	..	..	..	..	..	..	..	127,890
1967 ..	..	..	..	..	..	..	..	..	155,969
1968 ..	..	..	..	..	..	..	..	..	172,040
1969 ..	..	..	..	..	..	..	..	..	189,590
1970 ..	..	..	..	..	..	..	..	..	202,003
Total .. .. .									1,045,935

The millionth smear was received on November 6th, 1970, and to mark the occasion a full-day Symposium on Cervical Cancer was held at the University of Sydney. General practitioners, gynaecologists, radiotherapists, cytologists, and pathologists from interstate and New South Wales, including several members of our staff, contributed papers and reviewed the findings.

To date evidence of early cancer of the cervix has been found in some 4,017 women in whom there was no clinical suspicion whatsoever of cancer. In 2,470 of these a diagnosis has been confirmed histologically and appropriate treatment instituted at a stage of the disease when the prospects of complete cure are very good. In the remainder further investigations are proceeding and there is little doubt that in a very high proportion of these histological confirmation of the diagnosis will be forthcoming in the near future.

Exfoliative cytology has also been applied more to assist in the clinical diagnosis in cases of suspected cancer of stomach, lung, urinary bladder, etc. as mass screening programmes for the detection of cancer in these situations is not practicable. A total of 7,538 such examinations were carried out during the year.

### Haematology

Haematology is concerned with the investigation of blood diseases. During the year the Haematology Department received 10,266 specimens (19.4 per cent more than in 1969) on which 43,325 (22 per cent more than in 1969) investigations were carried out. As in previous years, the greater proportion of the increase is accounted for by the more complex investigations so that the crude figures give little true indication of the increased work load. Microbiological assays for vitamin B<sub>12</sub> and folic acid now become standard investigations and in order that they may be efficiently performed it is now necessary to apply stricter criteria to the selection of patients. Specimens for these investigations are now accepted only where we are satisfied that the result will be of value to the patient, or for clinical research and teaching where full data are being accumulated. No less than 1,526 serum assays for vitamin B<sub>12</sub> and 722 folic acid assays were undertaken for diagnostic purposes during the year and many hundreds more for research. Because of the complexity of these investigations, they have all to be carried out by senior staff and this has imposed a heavy burden on the department. Demands for haemoglobin electrophoresis are increasing and new techniques such as agar and starch gel are now in use when indicated. The Haematology Department now also carries out a full range of histochemical tests for leucocyte abnormalities and has recently developed methods for the estimation of Intrinsic Factor in gastric juices.

In July Dr B. J. Arnold, the Senior Haematologist, proceeded abroad on a Public Service Board Travelling Fellowship. She attended the International Haematology Congress in Munich at which she presented a paper on the seasonal variations in vitamin B<sub>12</sub> levels, and then proceeded to spend some months in the Haematology Department of the Royal Post-Graduate Medical School in London before going on to further work and study in the United States of America.

### Venereal Disease Serology

This department is concerned with carrying out blood tests for the diagnosis of syphilis and it also does a smaller number of serological tests relating to gonorrhoea and lymphogranuloma venereum infections. During the year 163,210 serological tests were carried out, a decrease of 3.5 per cent on the corresponding figure for 1969. The largest number of tests was done for public hospitals 44,519; mental hospitals 34,400; the epidemiology division 26,841; the Prisons Department 10,617 and private medical practitioners 24,193.

When at the request of the National Health and Medical Research Council, this institute assumed reference responsibilities for treponema pallidum immobilization (T.P.I.) and fluorescent treponemal antibody (F.T.A.) tests for the whole of Australia, the Health Departments of all States were notified by circular of the availability of the service and many specimens are now being received from other States for these highly specific and sensitive tests. Specimens for the T.P.I. test are also received from New Zealand, New Guinea, and Fiji. During the year 4,189 T.P.I. tests were done compared with 4,405 in 1969; 3,922 F.T.A. tests were done compared with 4,024 the previous year. The decline in the volume of these tests follows the completion of a survey of the incidence of treponematoses in the Eastern Highlands of New Guinea.

The decline in the number of tests performed is due in large measure to the fact Dr M. F. Garner, the Senior Serologist, spent some months abroad. She visited leading venereal disease laboratories in the United States of America, England, Sweden, Denmark, and France. This was carried out during the tenure of a WHO Exchange of Research Workers Grant and ended with a visit to the Treponematoses Department of WHO in Geneva.

As a result of this visit it is proposed to introduce the automated reagin test for syphilis into the routine work of the laboratory. However, at present, there is no space available in which to place this apparatus. Its introduction would keep the laboratory as up-to-date as any in the world and release some staff members for more advanced work.

### Bacteriology

Despite the inconvenience caused by continuing structural alterations to the department, 21,831 specimens were received (34 per cent more than in 1969) on which 65,707 examinations were carried out (35 per cent more than in 1969). An increase was recorded in specimens of all types, i.e., clinical bacteriology, public health and reference. One of the most important roles of the department remains the provision of a service in clinical bacteriology to Lidcombe Hospital. The mycobacterial section continued to receive increasing numbers of specimens of sputum from chest clinics, country hospitals and some metropolitan sources. This section has developed considerable expertise in the identification of the anonymous mycobacteria. An important public health laboratory service provided is the diagnosis of gonorrhoea for the Division of Epidemiology and for government institutions such as the Minda Remand Centre, Lidcombe, and the Women's Training and Detention Centre, Silverwater. A growing service was provided to smaller hospital laboratories, particularly in the country, in the identification of cultures of fungi and of bacteria. Serological tests for toxoplasmosis are done on specimens referred from all over the State, including all teaching hospitals.

### Clinical Biochemistry

The year saw a further increase in work load, with a total of 30,034 specimens examined, about 5 per cent more than in the previous year. On these specimens 71,663 tests were performed, an increase in the analytical work load of about 20 per cent. This latter increase was ascribable in large measure to an increase in the average number of investigations being requested for any one specimen. This rose from 2.1 tests/specimens in 1969 to 2.4 tests/specimens in 1970.

What was said in last year's report concerning the nature of the work carried out continues to apply to an even more marked degree. The proportion of highly complex investigations, with their greater demands on skill and training, continues to grow, and with this complexity, the actual time expended per investigation is of necessity considerably longer than for the more straightforward "bread-and-butter" types of analysis. The restrictions brought about by work saturation of available senior staff with the requisite degree of expertise is already being felt; in fact, one important investigation—the analysis of urine for porphyrins as an aid in the diagnosis and treatment of porphyrics—has had to be abandoned because of lack of staff to undertake the work. The institute formerly provided the sole service in New South Wales for this investigation.

As a result of overall pressures, little time has remained to explore adequately any improvements or innovations in analytical methodology.

The pattern of work again was determined to a considerable extent by the fact that the major hospitals tend to send specimens to the institute which they are unable to submit to time-saving techniques using automated equipment. No such equipment yet exists for most of this type of work.

The demand for immunoglobulin assay and for the electrophoresis of serum for immune globulin assays has increased remarkably. The electrophoretic separation and analysis of serum lipids, and the typing of hyperlipoproteinaemias has become an important facet of the routine work and may be expected to expand steadily in view of the prevailing interest in relating heart disease to blood lipid abnormalities. In 1968, no lipid electrophoreses were undertaken; in 1969 the figure was 108; and this year it was 754. Immunoglobulin assays rose from 312 in 1968, to 2,176 in 1969, to 4,180 this year.

### Virology

Virology is concerned with the study of viruses and the diseases which they produce. A total of 21,567 specimens was received during the year, an increase of 89 per cent over the previous year. A total of 32,108 examinations was carried out on these specimens.

The marked increase was again due to requests for rubella antibody tests. These were essential for one of three reasons:

- (a) Diagnosis of rubella in pregnant women.
- (b) Investigations of pregnant women who have had contact with a case of rubella.
- (c) Estimation of immunity status of pregnant women. Non-immune women in this latter group are vaccinated post-partum in accordance with the recommendations of the National Health and Medical Research Council.

## B. TEACHING

### Training of Medical Graduates as Pathologists

The institute enjoys full recognition by the University of Sydney and the College of Pathologists of Australia as an approved laboratory for the training of medical graduates seeking specialist qualifications in pathology. Seven registrars are at present undergoing training in the institute's laboratories. The tenure of the registrarships is 4 years, during which time the trainees spend 15 months doing pathological anatomy and histology and 9 months in each of the other major departments, i.e. haematology, bacteriology, and clinical biochemistry, leaving a further 6 months for general revision. Post-graduate teaching activities are reinforced by attendance at seminars, scientific meetings, lectures and informal tutorials. For 6 months, while working in the Haematology Department, the registrar is either in residence or on call for all emergency pathology work at the Lidcombe Hospital and in this way he is able to gain experience in emergency pathology.

Bearing in mind that it is only 11½ years since the institute was established and that it took almost a year before effective training programmes were developed and trainees recruited, the results have been most gratifying. Pathologists are required to undergo a minimum of 5 years post-graduate training before becoming eligible for membership of the College of Pathologists of Australia and in 1965 the first of our trainees qualified. To date ten pathologists trained at the institute have gained specialist qualifications; a further two are confidently expected to qualify in the coming year.

### **Training of Laboratory Assistants and Medical Technologists**

The training of laboratory assistants and medical technologists is conducted on an apprenticeship system combined with part-time formal studies at the Sydney Technical College. Laboratory assistants-in-training undergo a 4-year course after which they are eligible to sit for the Biology Certificate at the Sydney Technical College and qualify as laboratory assistants. After a further 2 years of study, i.e., 6 years in all, they may qualify for the Diploma in Medical Technology. To-date fifty-one of our trainees have qualified for the Biology Certificate and thirty attained the higher qualification, the Diploma in Medical Technology. Unfortunately, our net yield from this training programme has been rather disappointing, as thirty-six of our past trainees (twenty-five medical technologists and nine laboratory assistants) have left to work elsewhere. Some comfort can be derived from the fact that a great majority are still utilizing their training and that we have provided much needed staff for public hospitals. Indirectly they are still of value to this institute in that the work which they now do in the public hospitals reduces the amount which is referred to the institute.

The technical staff in the Department of Exfoliative Cytology known as scanners are all trained at the institute, which is now in a position not only to offer training to pathologists and gynaecologists, but also to train cytotechnicians and scanners for outside bodies. Several from New South Wales and other States have already taken advantage of the training facilities offered by the institute.

### **C. RESEARCH**

Despite difficulties caused by the now enormous burden of routine work, lack of space and staff shortages, programmes of original work are being pursued in various departments. Much of this is of a developmental nature aimed at overcoming technical difficulties inherent in some of the more specialized investigations. Some involve epidemiological or other types of survey, while the small residue is rather more fundamental in nature.

#### **Biochemistry**

The time and staff available for research has been curtailed this year because of routine pressures, but nevertheless, the research section has continued their programme of studies on steroid metabolism, using gas chromatography for analysis. The major study now under way is an investigation into the precise within-day and day-to-day variations in metabolic outputs of corticosteroids, something not so far carried out in detail. The information being obtained is directed towards assessing the validity or otherwise of using radioactive cortisol injections and subsequent measurement of the specific activities of the urinary metabolites as a measure of cortisol secretion rate from the adrenal gland. An accurate measure of this is of great importance in assessing adrenal function in man. The results obtained so far look like giving the first direct evidence that such a procedure is invalid if accurate diagnosis is to be made.

On the immunology side, examination of sera for abnormal proteins was continued with reference to such diseases as multiple myeloma, macroglobulinaemia, and chronic liver disease. Surveys were completed of the immunoglobulin levels in deaf children, as well as in Aboriginal and other children from the Sydney area.

#### **Histopathology**

Work has proceeded on the histochemistry of mucins and techniques of immunohistochemistry with particular reference to fluorescence microscopy. The Histopathology Department is also actively pursuing a detailed study of early malignant change of the cervix uteri detected initially by the Department of Exfoliative Cytology. Work is also proceeding on a detailed study of histological material obtained from patients in whom false positive cytology findings were reported.

#### **Virology**

The following new techniques have been introduced into the virology laboratory during the past twelve months.

- (i) A complement fixation test for rubella, which is of use in diagnosis when the haemagglutination inhibition test fails because of unsatisfactory timing in the collection of specimens. The preparation of the antigen used in this test is difficult, but has now been put on a routine basis.
- (ii) Estimations of rubella IgM globulin, which serves a similar purpose as the CF test in acquired rubella and is the only test of value for rapid diagnosis of congenital rubella. The method used employs ultracentrifugation in a sucrose density gradient.

The following epidemiological and investigative studies have been carried out.

- (i) A co-operative study with a group of general practitioners into the efficiency of vaccination against A<sub>2</sub>/Hong Kong influenza.
- (ii) Serological studies on the epidemiology of Hong Kong influenza have continued. Approximately 20 per cent of the population were infected in the winter of this year.
- (iii) A study of the population immunity to poliomyelitis has been carried out—the results are at present being analysed.
- (iv) A study of cytomegalovirus infection in renal transplant patients has revealed a 10 per cent rate.
- (v) Early experience with the “Cendevax” rubella vaccine suggested that some individuals did not produce antibodies after vaccination. A deliberate study was therefore undertaken. No failures were detected in forty-five seronegative women vaccinated.
- (vi) Preliminary work on a single dilution test for rubella immunity has shown it to be accurate. If substituted for the current test for ante-natal screening it will result in an eight-fold reduction in cost and work load.

### **Bacteriology**

Work previously reported is still proceeding on improving techniques for the classification of “anonymous” mycobacteria utilising thin layer chromatography of extracted lipid fractions.

At the instigation of Dr S. Fisher, Director, Division of Epidemiology, an investigation was started into the incidence of asymptomatic gonorrhoea in Sydney. This is a collaborative study involving the Institute of Clinical Pathology and Medical Research, the Royal Hospital for Women, Paddington, Liverpool District Hospital, Hornsby District Hospital and the Women’s Hospital, Crown Street.

In collaboration with Dr. D. Hansman, Women’s Hospital, Crown Street, an investigation was carried out into the possible role of mycoplasmas in conjunctivitis of the new born.

### **Haematology**

Investigation of the nutritional status of aged males, with particular reference to haematinics, has continued during the year. The Haematology Department has, over the past eleven years, assayed over 10,000 individual specimens of serum for vitamin B<sub>12</sub> and this wealth of material is at present being subjected to detailed statistical analysis. Interesting previously unrecognized findings have already emerged on seasonal incidence and sex and age distribution of deficiency states. This was reported by Dr Arnold, the Senior Haematologist, at the meeting of the International Society of Haematologists at Munich in August.

### **Exfoliative Cytology**

The main research activity is a long-term evaluation of the effect of mass population screening on morbidity and mortality from carcinoma of the cervix. Concurrent with this is an investigation into certain epidemiological aspects of cervical carcinoma, such as age, parity, hormonal influences, etc. Both these projects involve the sorting and statistical analysis of a very large volume of records. These records have all now been transferred to A.D.P. The millionth smear was received in November and now a detailed statistical analysis of all the material is planned.

### **Venereal Disease Serology**

During 1971, space and time permitting, it is hoped to start some developmental work on a more satisfactory treponema pallidum haemagglutination test than is available overseas at present.

A large amount of work was carried out during the year for the General Hospital in Port Moresby into an investigation into a syphilis epidemic, which is spreading along the new highway in the Eastern Highlands of New Guinea.

Other surveys in New Guinea in which the laboratory is participating were suspended temporarily during Dr Garner’s absence abroad.

### **Additional Accommodation**

Reference was made in last year’s report to the critical situation with regard to laboratory accommodation. This situation has, of course, worsened in the past year, during which time the workload has continued its substantial growth rate. Although various committees have considered the plans, there is as yet, no firm decision as to whether or not these are to proceed. There is no doubt whatsoever that, unless an early start is made on extensions to the institute, there will be no alternative but to restrict the intake of work.

THE INSTITUTE OF CLINICAL PATHOLOGY AND MEDICAL RESEARCH  
ADDRESSES TO LEARNED SOCIETIES AND PUBLIC BODIES BY STAFF MEMBERS  
DURING 1970

- “Urinary Steroid Patterns in Thyroid Disease.” R. N. Beale. Paper read at the Seminar of the Thyroid joint meeting of the College of Pathologists and the Association of Clinical Biochemists, Sydney, April, 1970.
- “Review of Recent Articles of Biochemical Interest in the American Journal of Clinical Pathology.” D. Croft. Presented by D. Croft at the Annual General Meeting of the Australian Association of Clinical Biochemists, June, 1970.
- “Review of Recent Articles of Biochemical Interest in the Journal of Clinical Pathology.” J. O. Bostrom. Presented by J. O. Bostrom at the Annual General Meeting of the Australian Association of Clinical Biochemists, June, 1970.
- “Testing of Blood Donors for Syphilis.” M. F. Garner. Lecture given at a Blood Grouping and Serology Workshop arranged by the Blood Transfusion Service. This was followed by a VDRL test workshop conducted by M. F. Garner and J. L. Backhouse.
- “Assessment of Rubella Infection in Pregnancy.” R. R. Reid. Given August 27th, 1970, as part of the Advanced Course in Obstetrics and Gynaecology of the Royal College of Obstetricians and Gynaecologists.
- “Aspects of Medical Virology.” R. R. Reid. Given on October 29th, 1970, to the Clinical and Laboratory Staff of the Mater Misericordiae Hospital, North Sydney.
- “Recent Advances in the Diagnosis of Virus Diseases.” A. M. Murphy. Section of Pathology, A.M.A., May, 1970.
- “Influenza.” A. M. Murphy. Staff, Ryde District Memorial Hospital, August, 1970.
- “Virus Infection of the Respiratory Tract.” A. M. Murphy. Staff, Hornsby District Hospital.
- “The History of the N.S.W. Cancer Detection Programme.” H. Kramer. Delivered at Symposium on Cervical Cancer Detection, Sydney University, November 13th, 1970.
- “The First Million Smears—Past, Present and Future.” T. J. Ryan. Delivered at Symposium on Cervical Cancer Detection, Sydney University, November 13th, 1970.
- “What Do the Changes Mean?” E. S. Finckh. Delivered at Symposium on Cervical Cancer Detection, Sydney University, November 13th, 1970.
- “The ‘False Positive’.” J. Cooper Booth. Delivered at Symposium on Cervical Cancer Detection, Sydney University, November 13th, 1970.
- “Some Demographic Aspects of Vitamin B<sub>12</sub> Deficiency in New South Wales.” B. Arnold. Delivered at XIII Conference of the International Society of Haematology, Munich, August, 1970.
- “The Switched-On Cell.” E. S. Finckh. Delivered at Medical Seminar, Royal Prince Alfred Hospital, Sydney, May, 1970.
- “Why Don’t Your Tissues Stay Normal?” E. S. Finckh. Broadcast, Medical School of the Air, University of New South Wales, May, 1970.
- “Cellular Turnover in Tracheal Epithelium.” E. S. Finckh. Delivered at Cardio-Respiratory Seminar, Royal Prince Alfred Hospital, Sydney, June, 1970.
- “The Size of Accessory Bronchial Glands in Asthmatic and in Control Subjects.” E. S. Finckh. Delivered at The Asthma Foundation, National Conference, Sydney, June, 1970.
- “Cervical Cytology—Are We Scraping the Surface of the Problem?” T. J. Ryan. Paper delivered at the Sixth New Zealand Congress in Obstetrics and Gynaecology, April, 1970.
- “Further Assessment of the Single Parameter Approach to the Diagnosis of a Positive Cervical Smear.” Paper delivered at The First Congress of the European Federation of Cytology Societies, Prague, Czechoslovakia, September, 1970.

## THE INSTITUTE OF CLINICAL PATHOLOGY AND MEDICAL RESEARCH

## PUBLICATIONS BY STAFF MEMBERS

- "A Survey for Enteropathogenic Bacteria in a Babies' Home." Wendy B. Riley, B.Sc.; *M. J. Aust.*, 1: 057—1970.
- "The Biological False Positive Reaction to Serological Tests for Syphilis." M. F. Garner; *J. Clin. Path.*, 1970; 23, 31–34.
- "1968 Survey of Treponematoses in the Eastern Highlands of New Guinea." M. F. Garner and R. W. Hornabrook; *Brit. J. vener. Dis.*, Feb., 1970, 46.13.
- "Treponematoses in New Guinea." M. F. Garner and R. W. Hornabrook; *Papua and New Guinea Med. J.*, 1970, 13.53.
- "Yaws in an Isolated Australian Aboriginal Population." M. F. Garner, J. L. Backhouse and J. Tibbs; *Bull. W.H.O.*; 43.603.
- "The Fluorescent Treponemal Antibody Absorption (FTA-ABS) Test in Yaws." M. F. Garner, J. L. Backhouse, C. Cook and P. Roeder; *Brit. J. vener. Dis.*; 46.284.
- "Chronic Biological False Positive Reactions to Serological Tests for Syphilis in Blood Donors." M. F. Garner and J. L. Backhouse; *J. Clin. Path.*, 1970; 23.478.
- "Mycoplasma Pneumoniae in Lower Respiratory Tract Infections in New South Wales." R. R. Reid and A. M. Murphy; *Pathology*, Jan., 1970; Volume 2—Number 1.
- "Human Toxoplasmosis: Basic Pathology and Laboratory Diagnosis." R. R. Reid, S. Fisher and A. Palmer. *Broadsheet* No. 6, The College of Pathologists of Australia, 1970.
- "Distruzione Eccessiva di Tessuti da Terapia Citotossica Topica." J. C. Belisario, H. Kramer and E. Kocsard. *Giornale Italiano di Dermatologia Minerva Dermatologia*, 1970; 45–111. 74.
- "Single-Sample Diagnosis of Recent Rubella by Fractionation of Antibody on Sephadex G-200 Column." J. Gupta, V. Peterson, M. Stout and A. Murphy; *J. Clin. Path.*—in press.
- "The Persistence of Complement-Fixing Antibodies to Q. Fever after Infection." A. M. Murphy and P. R. Field; *Med. J. of Aust.*, 1970; 1.1148.
- "Mycoplasma Pneumoniae" (editorial). R. R. Reid and A. M. Murphy; *M. J. Aust.*, 1970; 1.783.
- "Hong Kong Influenza: The Coming Winter." A. M. Murphy, B. R. James, A. McIntyre and M. Stout; *M. J. Aust.*, 1970; 1.393.
- "Neurological Complications of A<sub>2</sub>/Hong Kong/68 Influenza Virus." A. M. Murphy and R. A. Hawkes; *M. J. Aust.*, 1970; 2.511.
- "Recent Research on Respiratory Infections." A. M. Murphy; *Health in N.S.W.*, May, 1970.
- "Rubella Vaccination." J. Forrest, M. Menser, R. Stinn, M. Novak, A. M. Murphy and M. Stout. *M. J. Aust.*—in press.
- "Redistribution of Squamous and Columnar Epithelium after Gastric Mucosal Wounds in the Rat." J. Wong and E. S. Finckh; *Pathology*, 1970; 2.147.
- "Gas-chromatographic Quantitation of Steroids in Health and Disease."
- Part 3. "Systematic Analysis of Urinary Neutral Steroids." R. N. Beale, D. Croft and F. R. Taylor, *Steroids*—in press.
- Part 4. "Determination of Conjugated Cortisol Metabolites in Urine." R. N. Beale, D. Croft and F. R. Taylor, *Steroids*—in press.
- Part 5. "Effects of Thyroid Disease on Neutral Steroid Metabolism." R. N. Beale, D. Croft and Denise Powell, *Steroids*—in press.

## NEW SOUTH WALES DEPARTMENT OF PUBLIC HEALTH

## THE INSTITUTE OF CLINICAL PATHOLOGY AND MEDICAL RESEARCH

## STATISTICAL SUMMARY OF SPECIMENS RECEIVED AND EXAMINATIONS COMPLETED

1ST JANUARY, 1970–31ST DECEMBER, 1970

*Histopathology*

					1969		1970
					Specimens	Sections	Specimens      Sections
Surgical—							
No. specimens received	..	..	..	..	12,373		13,829
Paraffin sections	..	..	..	..		44,974	46,529
Frozen sections	..	..	..	..		144	118
Post Mortems—							
No. performed (Lidcombe)	..	..	..	..	194		175
Paraffin sections	..	..	..	..		2,574	2,282
No. performed (City Morgue)	..	..	..	..	78		15
Total	..	..	..	..	272		290
Museum and Library Specimens—							
No. mounted	..	..	..	..	59		22
Paraffin sections	..	..	..	..		200	120
Miscellaneous	..	..	..	..		1,485	1,229
						<u>49,377</u>	<u>50,278</u>

*Immunology*

								1969	1970
Chorionic Gonadotrophin Immuno-Assay	..	..	..	..	..	..	..	216	197
Antinuclear factor in serum	..	..	..	..	..	..	..	335	710
Thyroid antibodies in serum	..	..	..	..	..	..	..	45	106
L.E. Latex Flocculation	..	..	..	..	..	..	..	..	76
Latex Flocculation Test for Rheumatoid Factor	..	..	..	..	..	..	..	..	241
Miscellaneous and Immunofluorescence	..	..	..	..	..	..	..	15	61
								<u>611</u>	<u>1,391</u>

*Virology*

Number of specimens	..	..	..	..	..	..	..	11,059	21,567
Examinations completed—									
Virus isolation and identification investigations	..	..	..	..	..	..	..	2,024	2,612
Mycoplasma Isolation	..	..	..	..	..	..	..	13	..
Complement fixation tests	..	..	..	..	..	..	..	5,336	6,575
Neutralization tests	..	..	..	..	..	..	..	4,044	6,896
Smears for Inclusion bodies (trachoma)	..	..	..	..	..	..	..	5	17
Haemagglutination tests	..	..	..	..	..	..	..	2,549	430
Haemagglutination-Inhibition Test	..	..	..	..	..	..	..	4,579	15,512
Virus Identification	..	..	..	..	..	..	..	..	..
Gel Diffusion for Hepatitis	..	..	..	..	..	..	..	..	66
								<u>18,550</u>	<u>32,108</u>

Statistical Summary of Specimens Received and Examinations Completed—*continued*

1ST JANUARY, 1970–31ST DECEMBER, 1970

*Haematology*

									1969	1970
Number of specimens	..	..	..	..	..	..	..	..	8,599	10,266
Examinations completed—										
Haemoglobin	..	..	..	..	..	..	..	..	5,990	7,139
Haematocrit	..	..	..	..	..	..	..	..	5,818	6,865
Red cell count	..	..	..	..	..	..	..	..	8	..
Reticulocytes	..	..	..	..	..	..	..	..	496	419
White cell count	..	..	..	..	..	..	..	..	3,670	4,762
Differential white cell count	..	..	..	..	..	..	..	..	3,427	4,755
Eosinophil count	..	..	..	..	..	..	..	..	2	1
Platelet count	..	..	..	..	..	..	..	..	233	259
Examination of blood film	..	..	..	..	..	..	..	..	5,869	7,151
Malaria	..	..	..	..	..	..	..	..	14	8
Blood sedimentation rate (E.S.R.)	..	..	..	..	..	..	..	..	2,322	2,919
L.E. cells	..	..	..	..	..	..	..	..	137	214
Prothrombin time	..	..	..	..	..	..	..	..	394	768
Examination of blood film for lead	..	..	..	..	..	..	..	..	2	2
Group and Rh factor	..	..	..	..	..	..	..	..	503	641
Cross-matching	..	..	..	..	..	..	..	..	1,471	2,727
Bone marrow examination	..	..	..	..	..	..	..	..	150	228
Bleeding and clotting times	..	..	..	..	..	..	..	..	13	23
Investigation of haemostatic defects	..	..	..	..	..	..	..	..	29	36
Serum vitamin B <sub>12</sub>	..	..	..	..	..	..	..	..	1,718	1,521
Serum folic acid	..	..	..	..	..	..	..	..	990	722
Intrinsic factor assay	..	..	..	..	..	..	..	..	5	5
Blood volume	} radioisotope tracer method	..	..	..	..	..	..	..	5	6
Red cell survival		..	..	..	..	..	..	..	2	5
Schilling test		..	..	..	..	..	..	..	25	13
Coomb's test	..	..	..	..	..	..	..	..	835	996
Red cell fragility	..	..	..	..	..	..	..	..	8	7
Paul-Bunnell reaction	..	..	..	..	..	..	..	..	244	246
Haemoglobin electrophoresis	..	..	..	..	..	..	..	..	364	363
Intrinsic factor antibodies	..	..	..	..	..	..	..	..	70	21
Histochemistry	..	..	..	..	..	..	..	..	18	12
Miscellaneous	..	..	..	..	..	..	..	..	78	78
Foetal haemoglobin	..	..	..	..	..	..	..	..	340	324
Folate absorption	..	..	..	..	..	..	..	..	39	9
Red cell folate	..	..	..	..	..	..	..	..	310	78
Histidine load	..	..	..	..	..	..	..	..	2	..
									<hr/> 35,601	<hr/> 43,323

*Venereal Disease Serology*

Examinations completed—										
Quantitative Wasserman Reaction	..	..	..	..	..	..	..	..	2,783	2,699
Wassermann Reaction	..	..	..	..	..	..	..	..	49,242	47,653
Reiter Protein Complement Fixation Test	..	..	..	..	..	..	..	..	50,067	48,122
V.D.R.L. Test	..	..	..	..	..	..	..	..	51,904	50,235
Hydatid Complement Fixation Test	..	..	..	..	..	..	..	..	372	336
Gonococcal Complement Fixation Test	..	..	..	..	..	..	..	..	6,324	5,985
L.G.V. Complement Fixation Test	..	..	..	..	..	..	..	..	59	69
Treponema Paddidum Immobilization Test	..	..	..	..	..	..	..	..	4,024	4,189
Fluorescent Treponemal Antibody Test	..	..	..	..	..	..	..	..	4,405	3,922
									<hr/> 169,180	<hr/> 163,210

*Exfoliative Cytology*

Number of specimens received—										
Gynaecological	..	..	..	..	..	..	..	..	189,590	202,003
General	..	..	..	..	..	..	..	..	1,597	1,697
									<hr/> 191,187	<hr/> 203,700
Number of smears examined—										
Gynaecological	..	..	..	..	..	..	..	..	189,590	202,003
General	..	..	..	..	..	..	..	..	7,117	7,538
									<hr/> 196,707	<hr/> 209,541

## Statistical Summary of Specimens Received and Examinations Completed—continued

1ST JANUARY, 1970–31ST DECEMBER, 1970

## Bacteriology

	1969	1970
Number of specimens .. .. .	16,319	21,831
Examinations completed—		
Antibiotic sensitivity tests .. .. .	7,904	12,200
Blood culture .. .. .	431	475
Cerebrospinal fluid cell count .. .. .	195	192
Cerebrospinal fluid culture .. .. .	60	50
Dark-ground preparation, spirochaetes .. .. .	8	1
<i>Escherichia coli</i> , serotype identification .. .. .	250	43
Faeces, microscopic examination .. .. .	127	114
Faeces, culture .. .. .	634	258
Guinea pig inoculation, <i>M. tuberculosis</i> (other than milk) .. .. .	597	738
Haemolytic streptococci, Lancefield grouping .. .. .	141	253
Milk, guinea pig inoculation, <i>M. tuberculosis</i> .. .. .	5	..
Milk, guinea pig inoculation, <i>B. abortus</i> .. .. .	5	..
Milk, guinea pig inoculation .. .. .	..	13
Nasal smears, <i>Mycobacterium leprae</i> .. .. .	30	8
Nasal swabs, culture .. .. .	22	..
Serotyping—Salmonella and Shigella .. .. .	..	127
Pus, Gram's stain .. .. .	1,440	634
Pus, culture .. .. .	1,440	631
Culture—identification .. .. .	568	381
Skin, hair and nail, direct examination .. .. .	283	377
Skin, hair and nail, culture for fungi .. .. .	377	999
Sensitivity tests, <i>M. tuberculosis</i> .. .. .	4,870	5,457
Sputum, Gram's stain .. .. .	915	1,117
Sputum, culture .. .. .	915	1,119
Sputum, Ziehl-Neelsen stain .. .. .	3,252	4,894
Sputum, culture .. .. .	3,252	4,894
<i>Staphylococcus aureus</i> , bacteriophage typing .. .. .	487	..
Sterility tests .. .. .	327	..
Urethral swab culture (male) .. .. .	..	454
Urethral swab culture .. .. .	..	1,688
Cervical swab culture .. .. .	..	2,262
Throat swab culture .. .. .	344	474
Urethral smears, Gram's stain .. .. .	1,151	1,397
Cervical smears, Gram's stain .. .. .	891	1,226
Urine, chemical examination .. .. .	3,310	3,737
Urine, microscopic examination .. .. .	3,310	3,737
Urine, Gram's stain .. .. .	3,324	1,874
Urine, culture .. .. .	3,324	3,641
Vaccines .. .. .	4	10
Gonococcal sensitivity test (penicillin incorporation) .. .. .	..	192
Vaginal discharge, <i>Candida albicans</i> .. .. .	93	..
Vaginal discharge, <i>Trichomonads</i> .. .. .	15	74
Brucella agglutination test .. .. .	632	832
Brucella Complement Fixation test .. .. .	607	825
Rose-Waaler test .. .. .	361	344
Weil-Felix reaction .. .. .	323	140
Widal Reaction .. .. .	352	261
Anti-streptolysin "O" titre .. .. .	1,055	1,188
Casoni test .. .. .	2	1
Mantoux test .. .. .	158	221
Latex Screening Test .. .. .	671	735
Haemagglutination test for toxoplasmosis .. .. .	..	2,020
C.F.T. for toxoplasmosis .. .. .	..	2,029
Mycoplasma isolation .. .. .	..	133
Mycobacterial identification .. .. .	..	597
Specimens for fungal examination other than skin, hair and nails .. .. .	..	12
Immunisations .. .. .	..	158
Histoplasmosis pptw. test .. .. .	..	8
Coccidioidin pptw. test .. .. .	..	1
Miscellaneous bacteriology .. .. .	299	461
	<hr/> 48,761	<hr/> 65,707

## Statistical Summary of Specimens Received and Examinations Completed—continued

1ST JANUARY, 1970-31ST DECEMBER, 1970

## Biochemistry

	1969	1970
Number of specimens .. .. .	28,715	30,034
Examinations completed—		
C.S.F. for—		
Chloride .. .. .	143	177
Globulin .. .. .	114	25
Glucose .. .. .	159	195
Protein .. .. .	174	191
Colloidal Mastic .. .. .	4	3
Blood and Serum for—		
Acid phosphatase .. .. .	362	358
Alkaline phosphatase .. .. .	2,077	2,607
Amylase .. .. .	145	201
Bilirubin .. .. .	1,966	2,517
Bromide .. .. .	256	133
Calcium .. .. .	967	1,346
Cholesterol .. .. .	1,542	1,977
Creatinine and creatine .. .. .	871	1,481
Electrolytes, sodium, potassium, chlorides, CO <sub>2</sub> .. .. .	9,496	11,361
Glucose .. .. .	1,558	2,248
Iron, total and binding capacity .. .. .	3,148	3,145
Lipids .. .. .	826	1,597
Enzymes .. .. .	2,011	3,727
Methaemoglobin .. .. .	17	24
Phosphate (inorganic) .. .. .	516	673
Magnesium .. .. .	..	37
Proteins—total .. .. .	4,631	5,460
Proteins—albumin .. .. .	1,149	762
Proteins—globulin .. .. .	1,144	751
Proteins—electrophoresis .. .. .	3,758	4,357
Protein-bound iodine .. .. .	9,593	9,098
Urea .. .. .	4,115	4,738
Uric acid .. .. .	1,370	1,551
Calculus .. .. .	107	165
Immunoglobulins (I.E.P.) .. .. .	2,176	4,256
Lipid electrophoresis .. .. .	108	697
Faeces for—		
Fats .. .. .	454	305
Occult blood .. .. .	60	48
Tryptic activity .. .. .	6	..
Porphyrins .. .. .	40	28
Urine for—		
Protein .. .. .	..	84
Bilirubin, porpobilinogen, urobilinogen .. .. .	172	252
Porphyrins .. .. .	276	202
Catecholamines .. .. .	1,054	974
17-Oxosteroids/Oxogenic steroids .. .. .	1,829	2,322
5-Hydroxy indoles .. .. .	103	69
Urea .. .. .	59	31
Sugar .. .. .	447	482
Miscellaneous chemical examinations .. .. .	897	1,008
	<hr/> 59,900	<hr/> 71,663





